Kodak

DISPLAY MANAGER SYSTEM | USER GUIDE

VERSION 4.0

November 2005

4F3698

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Part Number 4F3698

Eastman Kodak Company
343 State Street
Rochester, NY 14650

ABOUT THIS BOOK

This book describes how to use the KODAK Display Manager System.

Intended users of this book are

- Cinematographers
- Visual effects artists
- Directors of photography
- Colorists
- Post production engineers

The information in this book is also available in the Display Manager System by clicking **Help > Contents**.

Instructions for MACINTOSH, IRIX, LINUX, and WINDOWS Operating Systems are included. The software windows shown are for WINDOWS users, but the MACINTOSH, LINUX, and IRIX windows function in a similar manner.

Not all features discussed are available to all users as determined by the type of license that you purchase.

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INTRODUCTION

The KODAK Display Manager System lets you display a scanned negative image as it will appear projected via a motion picture film projector or a video image as it will appear on a broadcast monitor. The KODAK Display Manager System interfaces with a number of displays including computer monitors, HD/SD displays, and digital projectors.

When creating a print film look, the system emulates the photochemical process of motion picture print film. The results are placed in a 3D LUT (three dimensional Look Up Table). This LUT can be exported and used by supported imaging applications during the post production process.

When creating a video look, the system emulates a broadcast video display.

Before emulating a look, you must first calibrate and characterize your display. We recommend that you calibrate and characterize your display:

- Before the start of a new project
- If the computer goes into sleep mode or screen saver mode
- Whenever you turn on the computer or display
- If the display has been jarred or moved
- (CRT/LCD monitors) Roughly every 6 to 8 hours; a minimum of once a day
- (HD/SD video) Once a day
- (Digital projectors) Once a week

Types of Licenses

	Print Film Edition	VISION2 HD System Edition
Time Limit	term duration	Variable duration - dependant on loan agreement
Software Key Required	Yes	Yes
Monitor Calibration	Yes	Yes
Monitor Characterization	Yes	Yes
HD/SD Display Characterization	Yes	Yes
Projector Characterization	Yes	Yes
Print Look Emulation	Yes	No
Print Look Verification	Yes	No
Calibration Verification	Yes	Yes
Video Look Emulation	Yes	Yes
Export 3D LUT	Yes	Yes
Image Input Type	.dpx, .cin, .tif (with video content)	.tif (with video content)
Operating Systems	WINDOWS 2000/XP MAC OS 10.2 or higher MAC OS X 10.4 Tiger IRIX 6.5X LINUX Red Hat 9 (ia32 only) Red Hat Enterprise LINUX 3.0 (ia32 only) FEDORA Core 3 (ia32 only)	WINDOWS 2000/XP MAC OS 10.2 or higher MAC OS X 10.4 Tiger IRIX 6.5X LINUX Red Hat 9 (ia32 only) Red Hat Enterprise LINUX 3.0 (ia32 only) FEDORA Core 3 (ia32 only)

How it Works

To accurately generate a 3D LUT, you must work from a calibrated and characterized display. A sensor, which you position on your display, measures the luminance and chromaticities of a series of color patches. You can also use the sensor to verify the calibration and characterization.

NOTE

To characterize a projector you must use a spectrophotometer or a colorimeter suitable for measuring screen reflectance.

Calibration

The automatic calibration process gathers information from a sensor and transfers it to the monitor via the enable cable (USB Cable ECC 1). Adjustments are automatically made to the monitor contrast, brightness, and individual RGB biases and gains via the enable cable, based on information gathered by the sensor.

The first time that you initiate automatic calibration, the system prompts you to perform a monitor evaluation to determine if your monitor is capable of being automatically calibrated.

When calibrating an HD/SD device, you must manually calibrate the device using standard SMPTE procedures. A colorbars target is supplied with the Display Manager System.

Manually calibrate your display to SMPTE standards if:

- You are using an IRIX system
- You have an HD/SD device
- The enable cable does not recognize your monitor
- You were unable to successfully calibrate your monitor using automatic calibration

Characterization

After you have calibrated your display, you must characterize it to determine the gamma response and to track the primaries. The result is a .chr file, which the system uses to create a 3D LUT.

HD/SD displays and digital projectors must be characterized using the Manual Characterization Assistant. When characterizing these types of displays, you can project display patches provided on the Display Manager System CD through a supported imaging application (or you can display patches from one of the KODAK color patch set video tapes available from Kodak).

Viewing and Customizing a Look

From the Display Manager System Viewer, you can view images and apply a transform, which can be either a .chr file or a 3D LUT. With a properly calibrated and characterized monitor, images will closely match a projected print film image or broadcast image.

Verification

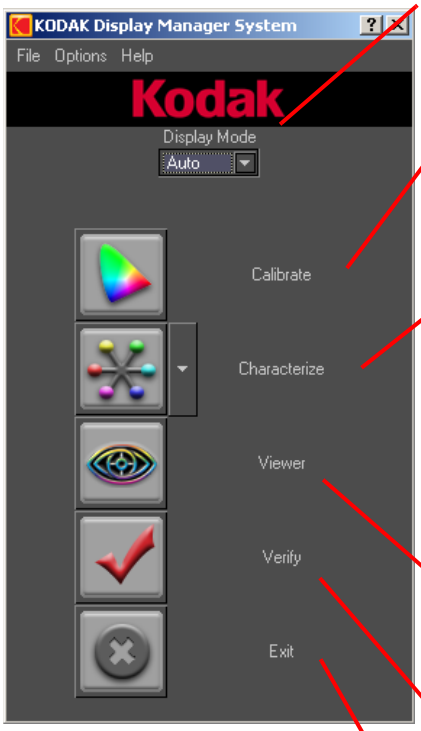
Perform a verification to measure the quality of the monitor setup and to measure the closeness of the print film match in CIElab colorspace.

NOTE

Verification is not available for HD/SD displays and digital projectors.

Main Window

The main window contains a selection box for the **Display Mode** and an icon for each step in the process.



Display Mode: Select **Auto** if you will be using the enable cable to calibrate. If not, it is important that you select **Manual**.

Calibrate: Opens the **Calibration** window where you attach a sensor to measure the luminance and chromaticity of a series of color patches.

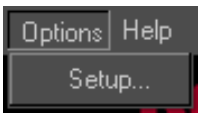
Characterize: Opens the **Characterization** window where you attach a sensor to measure the luminance and chromaticity of a series of color patches. Choose **Manual Characterization Assistant** to characterize alternate display devices, such as HD/SD displays and digital projectors.

Viewer: Opens the Viewer where you load and view images, customize looks, and build and export 3D LUTs.

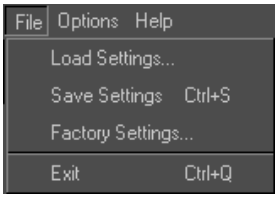
Verify: Opens the **Verification** window where you attach a sensor and verify the quality of the monitor setup and the print simulation.

Exit: Closes the application.

From the **Options** menu, select **Setup** to set the parameters and configure the system. See "Setting the Options" on page 22.



From the **File** menu, load your settings, save your settings or reset to the factory default settings. See "Saving and Loading Settings" on page 28.



Supported Hardware

The following hardware is recommended for use with the Display Manager System.

Generic Monitor Support

The Display Manager System supports many different monitors but not all monitors can be automatically calibrated by the system. Most high-quality professional grade monitors can be calibrated.

The first time that you initiate an automatic calibration, you are prompted to attach a sensor to the monitor so that the system can assess if the monitor can be automatically calibrated.

NOTE

Before running this evaluation, set your monitor to Expert mode and turn off the Super Bright mode if applicable.

You are then notified if the monitor can be automatically calibrated. If it cannot, you can manually adjust your monitor using SMPTE standard procedures and the supplied colorbars chart. For more information, see "Manual Calibration" on page 34.

This evaluation runs whenever you attach a monitor that was not previously tested with the system and then initiate automatic calibration.

Supported Displays

In addition to displays that can be automatically calibrated, you can use the Display Manager System with LCD monitors, HD/SD displays, and digital projectors. We recommend cinema grade digital projectors.

Enable Cable (USB Cable ECC 1)

An enable cable is required to transfer data from your monitor to your computer. This cable can be obtained through Kodak. Contact your service representative. See "Supported Spectrophotometers" on page 8.

Supported Sensors

The following sensors are supported by the Display Manager System:

- X-RITE Monitor Optimizer DTP94+EK (also known as MonacoOPTIX) - USB connection for LCD or CRT monitors
- X-RITE Monitor Optimizer DTP92+EK - serial connection for CRT monitors
- SEQUEL Chroma 4/C USB - USB connection for CRT monitors,
- SEQUEL Chroma 4/C USB with USB cable - for CRT monitors,
- SEQUEL Chroma 4/C Serial - Serial connection for CRT monitors,
- SEQUEL Chroma 4/L - USB connection for LCD monitors,
- USB Cable for VESA compliant CRT monitors
- PHOTO RESEARCH PR-650 - Serial connection for digital projection
- MINOLTA CS-100A - Serial connection for digital projection

To purchase the X-RITE, PHOTO RESEARCH or MINOLTA sensors, contact the manufacturer.

Refer to the following table when deciding the sensor to use with your system.

	WINDOWS OS	MAC OS	IRIX OS	LINUX OS
CRT Monitors and HD/SD displays	X-RITE DTP94+EK X-RITE DTP92+EK SEQUEL Chroma 4/C USB SEQUEL Chroma 4/C Serial	X-RITE DTP94+EK SEQUEL Chroma 4/C USB	SEQUEL Chroma 4/C Serial SEQUEL Chroma 4/C USB X-RITE DTP92+EK	SEQUEL Chroma 4/C USB SEQUEL Chroma 4/C Serial X-RITE DTP92+EK X-RITE DTP94+EK
LCD Monitors	X-RITE DTP94+EK SEQUEL Chroma 4/L USB	X-RITE DTP94+EK SEQUEL Chroma 4/L USB	X-RITE DTP92+EK	SEQUEL Chroma 4/L USB X-RITE DTP92+EK X-RITE DTP94+EK
Digital Projectors	PHOTO RESEARCH PR-650 MINOLTA CS-100A		PHOTO RESEARCH PR-650 MINOLTA CS-100A	PHOTO RESEARCH PR-650 MINOLTA CS-100A

NOTE

USB sensors are recommended for any system that is USB enabled.

Supported Spectrophotometers

When characterizing a digital projector, you must take readings from the projector output. The following sensors are recommended:

- MINOLTA CS-100A
- PHOTO RESEARCH PR-650

Getting Help

Accessing the Help System

To access the Help system from within the application, click **Help > Contents**.

What's This

(WINDOWS only) Press **Shift + F1** and a pop-up window opens that describes the current window.

OR

Click the question mark in the window title bar and then click the item for which you want more information. A pop-up window opens.

To open **What's This** topics in the Viewer, right-click (WINDOWS, IRIX, LINUX) or Ctrl + click (MACINTOSH) an item in the toolbar.

Troubleshooting

Consult the Troubleshooting chapter for issues that you might encounter. See "Troubleshooting" on page 71.

Email Help

Email questions to **tac@ei.kodak.com**.

Phone Support

Go to the website www.kodak.com/go/dm to locate the support number for your region.

INSTALLING AND SETTING UP YOUR SYSTEM

Follow these four main steps to install and set up your system:

- Step 1: Install the KODAK Display Manager System Software
- Step 2: Connect the Hardware
- Step 3: Obtain your License
- Step 4: Open the Software

Step 1 Install the Software

IMPORTANT

Before installing the Display Manager System, make sure to uninstall any other monitor calibration software that you might have on your system.

WINDOWS and MACINTOSH Operating System Installation

IMPORTANT

You must be logged in as administrator (WINDOWS or MACINTOSH Operating Systems) to install the Display Manager System.

To install on a WINDOWS or MACINTOSH Operating System:

1. Insert the installation CD.
2. (WINDOWS Operating System) Follow the on-screen prompts.

   Or

   (MACINTOSH Operating System) Double-click **kdminstaller.pkg** and follow the onscreen prompts.
3. Connect the hardware to your computer. See "Step 2: Connect the Hardware" on page 11.

IRIX Installation

IMPORTANT

You must be logged in as root (IRIX Operating System) to install the Display Manager System.

To install the Display Manager System on an IRIX computer, you should be familiar with the IRIX **inst** or **swmgr** command.

The required files can be found on the installation CD in the **dist** directory. Make sure that you have the following files:

- kdm
- kdm.idb
- kdm.sw

The IRIX computer must be running IRIX 6.5x with the corresponding version of NFS.

To install on an IRIX system:

1. Insert the installation CD into the CD-ROM drive.
2. Mount the CD-ROM.
3. Launch **inst** or **swmgr**.
4. Select the **kdm** package from the mounted CD-ROM drive.
5. Complete the installation by following the on-screen prompts.
6. Connect the hardware to your computer. See "Step 2: Connect the Hardware" on page 11.

LINUX Installation

IMPORTANT

You must be logged in as root (LINUX Operating System) to install the Display Manager System.

To install on a LINUX system:

1. Insert the installation CD into the CD-ROM drive.
2. Mount the CD.
3. Change directory to the mounted CDROM.
4. Type **rpm -Uvh KODAK_DMS-4.0.0.i386.rpm** to begin the installation process.
5. Connect the hardware to your computer. See "Step 2: Connect the Hardware" on page 11.

NOTE

Configure your panel (taskbar) to allow other windows to appear above. Or set your panel to autohide.

Step 2: Connect the Hardware

Before connecting the hardware, install the software.

The Display Manager System hardware consists of an enable cable and sensor. Purchase the sensor that is appropriate for your system configuration. See "Supported Sensors" on page 7 to learn about the sensors supported by the Display Manager System.

If you do not have enough available USB ports, use a USB hub when connecting the enable cable and sensor.

If you must run the cables long distances, you may need to purchase a Port Authority device and additional cables.

(WINDOWS) After you connect the hardware, click **Next** when the Found New Hardware Wizard opens. Follow the on-screen prompts. If you are prompted to locate the drivers:

- SEQUEL drivers are found in **C:\Progam Files\Kodak\KODAK Display Manager System\SequelDrivers**.
- X-RITE drivers are found in **C:\Progam Files\Kodak\KODAK Display Manager System\XRiteDrivers**.

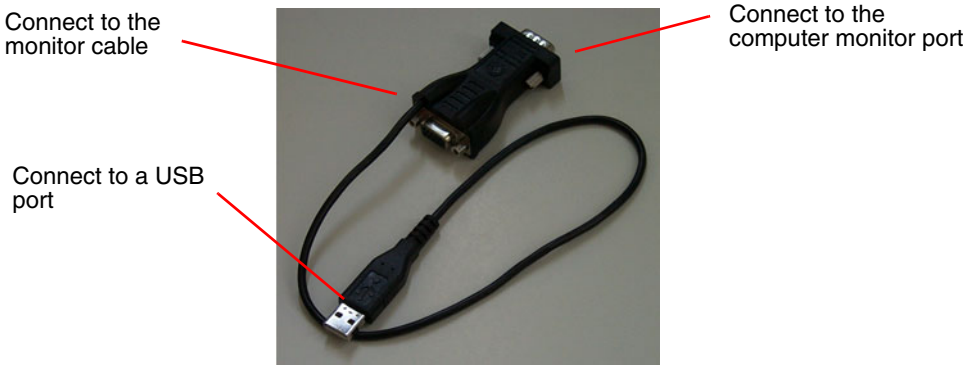
NOTE

For digital projectors, MINOLTA CS-100A or PHOTO RESEARCH PR-650 sensors are recommended.

Enable Cable (USB Cable ECC 1)

The enable cable allows the computer to talk to the monitor. It connects to the monitor port, a USB port, and then to the monitor cable.

You may need a DVI to HD15 pin adapter depending on your configuration.

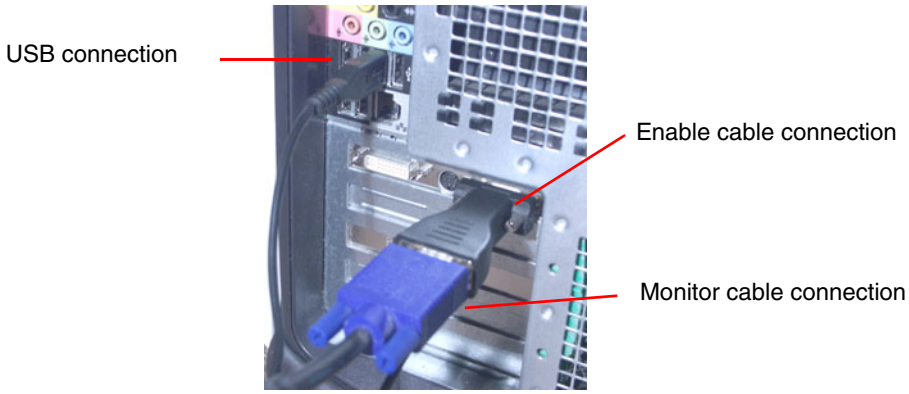


NOTE

(WINDOWS 2000 only) If you unplug the enable cable or sensor and then plug it back in, the system will not recognize it until you restart your computer.

To connect the enable cable:

1. Disconnect the original monitor cable from the computer.
2. Attach the enable cable to the monitor port on the computer.
3. Connect the monitor cable to the enable cable.
4. Attach the USB connector of the enable cable to a USB port.



X-RITE Sensors

X-RITE Monitor Optimizer DTP94+EK (MonacoOPTIX)

Use this USB sensor on CRT or LCD monitors.

To position the sensor during calibration:

1. Attach the counterweight to the cable.
2. If using a CRT monitor, attach the suction cup to the sensor cable and then fasten the suction cup to the screen.

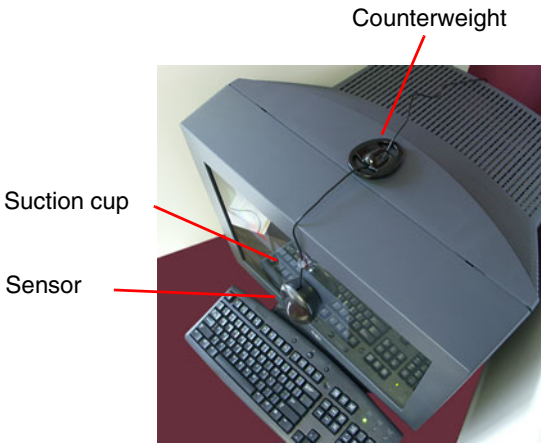
IMPORTANT

Never use the suction cup on an LCD monitor.

3. Position the sensor on the screen. Position the counterweight so that it counterbalances the sensor.

LCD monitor

CRT monitor

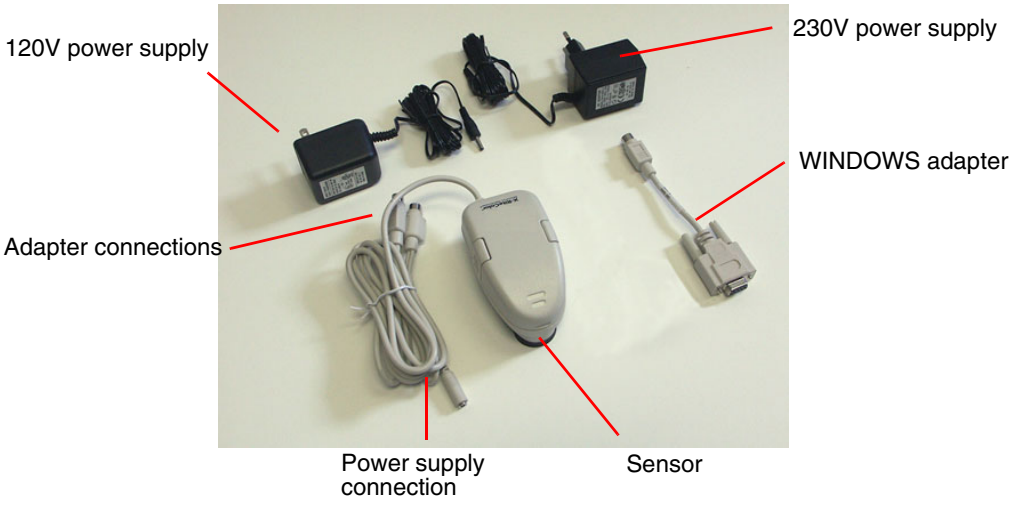


NOTE

If you are warned that the X-Rite DTP94 software has not passed Windows Logo testing, click **Continue Anyway**.

X-RITE Monitor Optimizer DTP92+EK

Use this serial sensor on CRT monitors.



NOTE

On IRIX, do not use serial port 1.

To connect the sensor:

1. Connect the WINDOWS adapter to the sensor cable.
2. Plug the WINDOWS connector into a serial port.
3. Plug the AC adapter connector into the sensor cable.
4. Plug the AC adapter into a power outlet.

During calibration, attach the sensor as shown here, making sure that the round portion of the sensor is at the top.

Firmly push on the sides of the sensor so that the spring-loaded suction cup slides forward onto the screen. When the suction cup is firmly in place, release the sensor.

You may need to moisten the suction cup by wiping it with a tissue lightly dampened with water, or to fog the suction cup by breathing on it.

You may need to clean the monitor and suction cup, if the sensor does not firmly attach. Clean the suction cup with a clean dry cloth.

IMPORTANT

Do not apply a cleanser to the suction cup.

To clean the monitor, use a soft, lint-free paper or cloth lightly dampened with a mild glass cleaner.

SEQUEL Sensors

Three Sequel sensors are recommended for use with the Display Manager System.

SEQUEL Chroma 4/C USB Sensor for CRT Monitors

This sensor connects to a USB port and attaches to a CRT monitor with suction cups.

During calibration, attach the sensor as shown here.

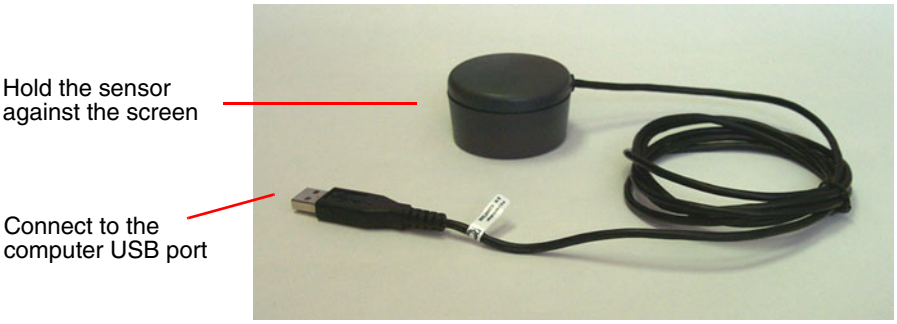
Press the sensor firmly to the screen being careful not to press too hard. Center it within the patch. Make sure that all suction cups are pressed against the monitor. If any of the suction cups come loose, the results may be unreliable and the process should be repeated. If the sensor falls off the monitor, reattach it and restart the process.

NOTE

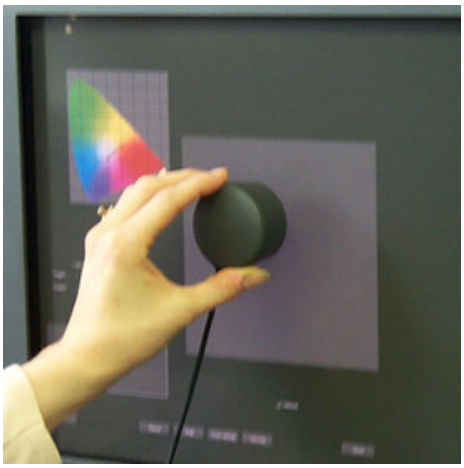
You may need to clean the sensor and the screen. See "Sensor Does Not Adhere to Screen" on page 75.

SEQUEL Chroma 4/L USB Sensor

This sensor connects to a USB port. Tip the LCD screen back as far as possible and hold the sensor against the screen while it is taking readings.



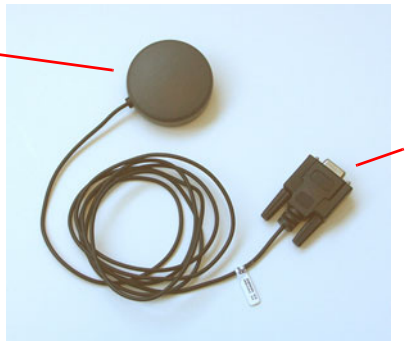
During calibration, hold the sensor as shown here.



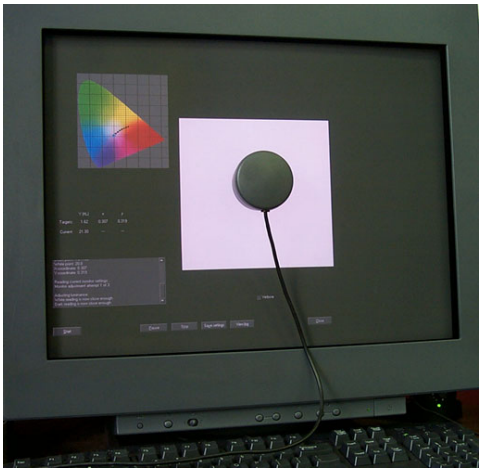
Hold the sensor firmly to the screen being careful not to press too hard. Center it within the color patch. Continue to hold in place while readings are taken.

SEQUEL Chroma 4/C Serial Sensor for CRT Monitors

The sensor connects to a USB port and attaches to a CRT monitor with suction cups.



During calibration, attach the sensor as shown here.



Press the sensor firmly to the screen being careful not to press too hard. Center it within the color patch. Make sure that all suction cups are pressed against the monitor. If any of the suction cups come loose, the results may be unreliable and the process should be repeated. If the sensor falls off the monitor, reattach it and restart the process.

Sensors Recommended for Digital Projection

- MINOLTA CS-100A
- PHOTO RESEARCH PR-650

PHOTO RESEARCH PR-650

1. Attach the PHOTO RESEARCH IFC-600 RS-232 cable between the PR-650 and the computer serial port.
2. Go to **Options > Setup**.
3. Click the **Sensor** tab.
4. Click **Type** and select **PhotoResearch PR-650**.
5. Click **Connection** and select the com port that the meter is connected to.

NOTE

Do not turn on the device until instructed by KODAK Display Manager Software.

MINOLTA CS-100A

1. Attach the MINOLTA LS-A12 two way interface cable between the MINOLTA CS-100A and the computer serial port.
2. When turning the device on, press and hold the **F** button until a C appears in the device external display.
3. Go to **Options > Setup**.
4. Click the **Sensor** tab.
5. Click **Type** and select **MINOLTA CS-100A**.
6. Click **Connection** and select the com port that the meter is connected to.

Step 3: Obtain Your License

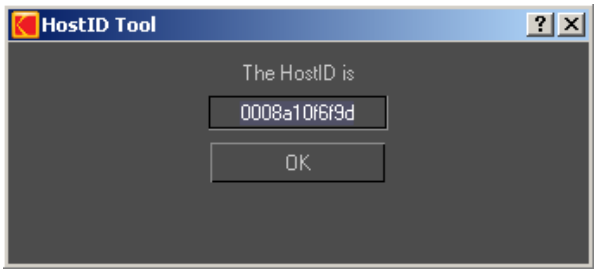
If you would like a free trial, go to the website www.kodak.com/go/dm and click **Trial LIcense Key**. Follow the on-screen prompts, then proceed to Step 5 (below).

To purchase a license:

1. (WINDOWS Operating System) Click **Start > Programs > KODAK Display Manager System > KODAK HostID Tool**.

   (LINUX, IRIX, MACINTOSH Operating Systems) In the Display Manager System main folder locate the **KODAK HostID Tool** and run the file.

   The following window opens.



2. Record all **HostIDs** and click **OK**.
3. Go to the website www.kodak.com/go/dm and locate the phone number for the customer service representative in your region.
4. Provide your customer service representative with the **HostID**.

   License information will be emailed to you.

5. When you receive your license information, copy and paste the information into an editor such as WordPad and save it as **kdm.lic**. Place the file as follows:

   WINDOWS Operating System: **C:\Program Files\KODAK\KODAK Display Manager System\Licenses**

   MACINTOSH Operating System: **/Applications/KODAK Display Manager System/Licenses**

   IRIX and LINUX Operating Systems: **/usr/local/KDM/Licenses**

Step 4: Open the Display Manager System

On a WINDOWS or MACINTOSH system, double-click the desktop icon  to open the Display Manager System.

On an IRIX or LINUX system:

1. Open a shell and change to the directory **/usr/local/KDM**.
2. From the command line, type **./kdm.sh**.

Renewing Your License

You will be prompted when your license expires. Contact your customer service representative to purchase a new license.

BEFORE CALIBRATING

Before you begin to calibrate, make sure that you:

- Prepare the monitor and viewing environment
- Setup the system options for calibration, sensors, tolerances, display, timing, and directories
- Load specific settings, if previously saved

NOTE

You do not need to setup the system options each time you calibrate. When the system opens, it automatically loads the settings that you save in the **kdm.ini** file. Or you can create and load a customized .ini file. See "Saving and Loading Settings" on page 28.

Preparing the Viewing Environment and Monitor

- Let the CRT monitor warm up for at least one hour. LCD monitors take 10 to 15 minutes to warm up.
- Set your power save mode to **Never**.
- Disable your screen saver.
- Set your screen resolution to at least 1280 x 1024.
- Dim the room lights or cover the screen with a dark cloth. There should be no light shining on the screen or on objects that might reflect on the screen.
- Set the monitor in Expert mode, if available.
  a) From the panel at the front of the monitor, select **COLOR**.
  b) Use the left and right arrow buttons on the panel to highlight the **Expert** tab, where you see the bias and gain settings.

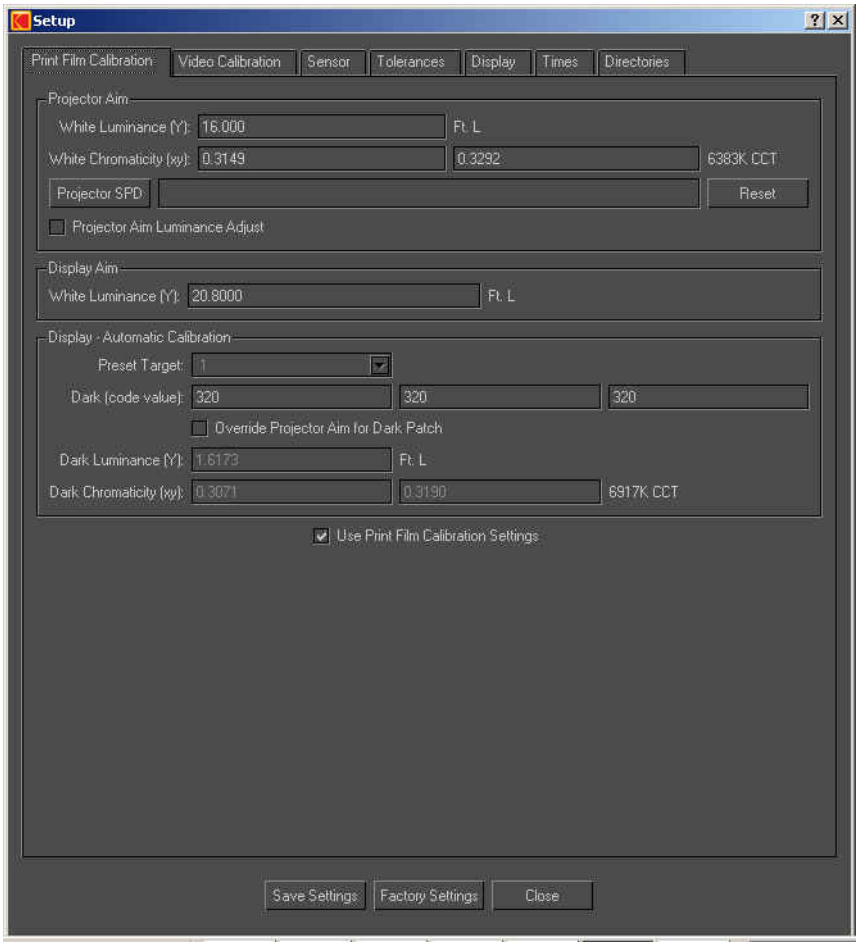
  NOTE

  For some monitors, the Expert mode is already selected as the default.
- If you have a newer SONY monitor that has a **Picture effect** button on the panel at the front of the monitor, press this repeatedly until the message **DYNAMIC** appears on screen.
- Set the monitor color quality to the highest possible value (at least 16 bits).
- If your display supports Super Bright mode, turn off the Super Bright mode by repeatedly pressing the SB button on the front of the monitor until the screen reads "Super Bright Mode Off".

Setting the Options

Go to **Options > Setup** to open the **Setup** window. From this window you can:

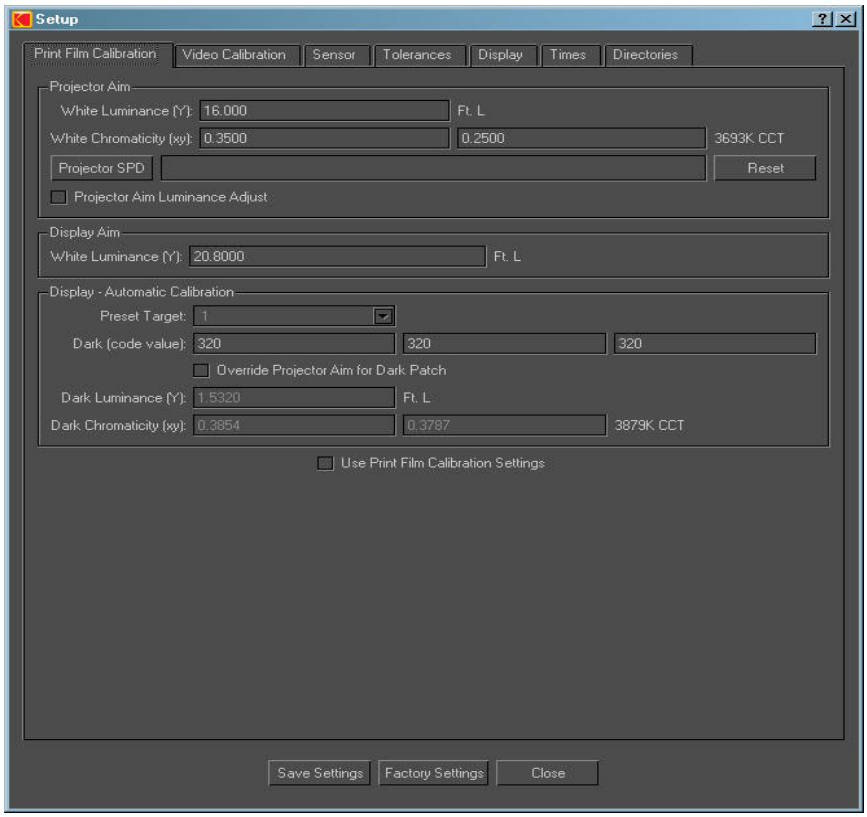
- Set the calibration parameters
- Identify the sensor you are using
- Set tolerances
- Select which display to calibrate on a dual-head system
- Control the calibration timing
- Set the paths for saving .chr files and LUTs



After you have made all of your selections on the various tabs, click **Save Settings** to save all the settings in a .ini file. By default, settings are saved to the **kdm.ini** file. When the system opens, it automatically loads the settings that you save in the **kdm.ini** file. Save your settings with a different file name to create a customized .ini file. See "Saving and Loading Settings" on page 28.

Print Film Calibration Setup

The **Print Film Calibration** tab on the **Setup** window contains information that is required to obtain an accurate print film match.



Projector Aim:

Projector aim values specify the intended film projector open gate settings. Enter the values for the film projector you are emulating. If you have not characterized a specific projector, use the default values.

- **White Luminance (Y)** - Open gate luminance can be measured by a colorimeter or spectrophotometer. Enter the value in ft-lamberts.
- **White Chromaticity (xy)** - Open gate chromaticity can be measured by a colorimeter or spectrophotometer. Enter values in CIE xy.
- **Projector SPD** (Spectral Power Distribution) - Click this button to open a browse window where you can load a file that was created when measuring your projector with a spectroradiometer. This file should be a single column of values corresponding to measurements from 340 to 970 nm in 10 nm increments. Comment lines may be included in the file preceded by a # sign.
- Select **Projector Aim Luminance Adjust** to bring the brightness of the display down to the projector aim when simulating the print look. Deselect this option to keep the brightness at the **Display Aim**.

Display Aim:

Enter the desired **White Luminance** for the monitor in ft-lamberts. Setting your monitor to the projector aim (typically 16 ft-lamberts) would make it too dark for other work. The display aim gives you the opportunity to set a higher display aim luminance.

Display - Automatic Calibration:

NOTE

The automatic calibration process tries to match all the values that you enter in this section.

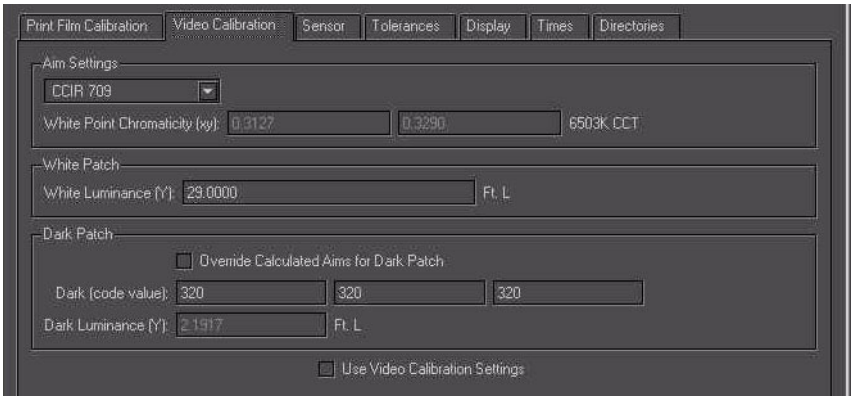
- From the **Target** drop-down list, select your monitor preset target that you want to over-write during calibration.
- Set the **Dark (code value)**. We recommend using the default settings.
- To override the projector Luminance and Chromaticity aim, check **Override Projector Aim for Dark Patch**. The value fields become active and you can enter new values for **Dark Luminance (Y)** and **Dark Chromaticity (x,y)**. We recommend using the default settings.

NOTE

The **Use Print Film Calibration Settings** checkbox is available in the Display Manager System Print Film Edition. Select this checkbox to use the Print Film target values in calibration.

Video Calibration Setup

The **Video Calibration** tab on the **Setup** window contains information that is required to obtain an accurate video match.



Aim Settings

Enter the values for the video space you want to calibrate to (CCIR 709, SMPTE RP145, or User Defined).

The default values represent a typical NTSC HD display. These values can be altered for a user defined video space.

- **White Point Chromaticity (xy)** - Desired white chromaticity. Enter values in CIE xy.

White Patch

- **White Luminance (Y)** - Desired white (max neutral code value) luminance can be measured by a colorimeter or spectrophotometer. Enter the value in ft-lamberts.

  NOTE

  Recommended practices for HD/SD video monitors place video legal whites at a luminance of approximately 30 ftL. Translating video 100% legal white (code value of 940) to a maximum monitor drive code value of 1023 (10-bit) yields an absolute monitor white luminance recommendation of approximately 34 ftL This high luminance setting may degrade the useful lifetime of some monitors

Dark Patch

- To override the video Dark (code value) settings, check **Override Calculated Aims for Dark Patch**. The value fields become active and you can enter new values for **Dark Luminance (Y)**. We recommend using the default settings.

Use Video Calibration Settings

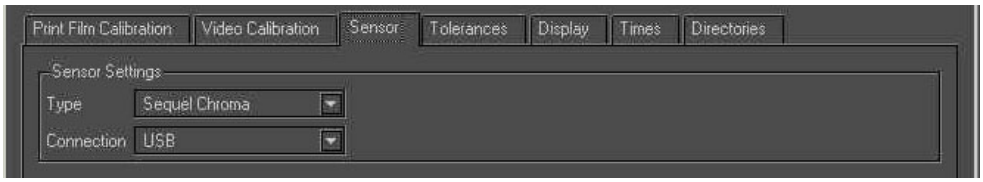
- Select this checkbox to determine which target values to use for calibration.

NOTE

If using the KODAK VISION2 HD System, use the default values when working with typical NTSC HD display.

Sensor Setup

From the **Sensor** tab on the **Setup** window, use the drop-down menus to select the type of sensor and the type of connection.

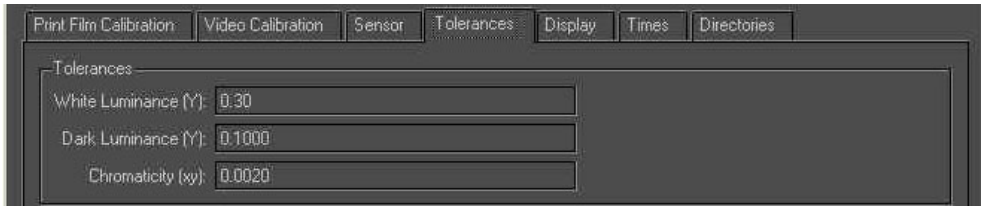


IMPORTANT

If you do not select the correct sensor and connection, the sensor will fail to initialize.

Tolerances Setup

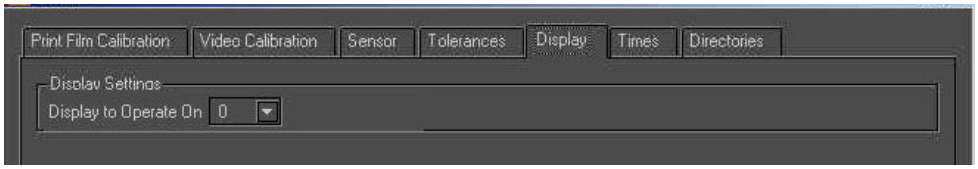
From the **Tolerances** tab on the **Setup** window, you can set the plus or minus calibration tolerances that you want to allow for your aim values. We recommend using the default settings.



Display Setup

If your system is configured for dual-head support, you must select the display that you want to view images on.

From the **Display** tab on the **Setup** window, use the **Display to Operate On** drop-down menu to select the display where you want to view the images. This display will be calibrated and characterized.



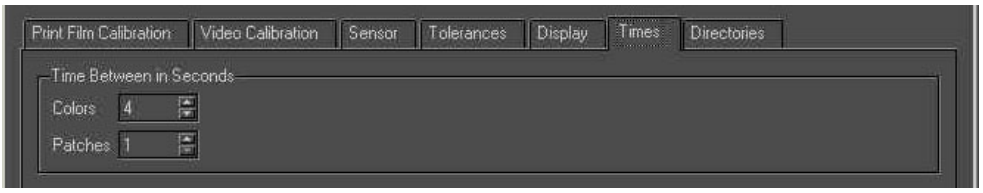
Timing Setup

Adjusting the time between the appearance of color sets and individual color patches, affects the total time to calibrate and characterize your display.

IMPORTANT

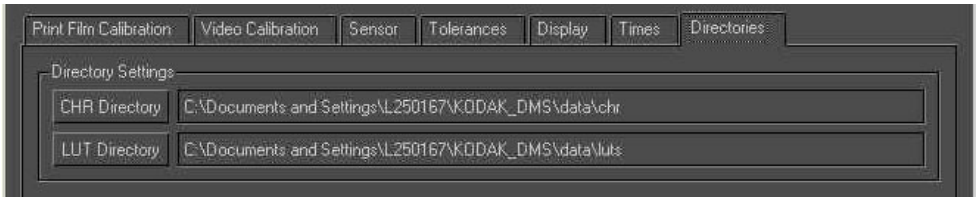
You may encounter calibration and characterization errors if the timing is set too fast. We recommend leaving the values set at the default. Never set the timing slower than the defaults.

From the Times tab on the **Setup** window, use the arrows to set the values.



Directories Setup

From the **Directories** tab on the **Setup** window, click the **CHR Directory** and **LUT Directory** buttons to select the directories where you want to save those files.



Saving and Loading Settings

If you are working on several projects at one time, you may find it convenient to save all of the settings for each project in a customized .ini file. Load the appropriate file to quickly change all your settings when you change projects.

By default, settings are saved to the **kdm.ini** file. This is the file that is used each time the system opens. There are two different locations where you can save settings to an .ini file—the **Setup** window and the Viewer.

To create a customized .ini file:

1. Go to **Options > Setup.** Enter the appropriate values and click **Save Settings**. Name the file appropriately.
2. Open the Viewer and make the appropriate selections. Click **Save Settings**. Save the file with the same name used in step 1.

To load a customized .ini file:

1. Go to **File > Load Settings**.
2. Browse for and double-click the .ini file that you want to use.

To save all settings at once:

Go to **File > Save Settings**.

CALIBRATION

From the **Display Mode** drop-down menu on the main window, select either **Auto** or **Manual** calibration.

Automatic calibration uses the enable cable to transfer data from the computer to a monitor. Adjustments based on this data are automatically made to your monitor. See "Automatic Calibration" on page 29.

The Manual Calibration Assistant is used to adjust your monitor to SMPTE standards if:

- You are using an IRIX system
- You are displaying your images on an HD/SD display or digital projector
- The enable cable does not recognize your monitor
- You were unable to successfully calibrate your monitor using automatic calibration

See "Manual Calibration" on page 34.

Automatic Calibration

Use this calibration method if you are using an enable cable to transfer data from your monitor to your computer. The system performs an evaluation to determine if your monitor can be automatically calibrated.

IMPORTANT

If your system is far from the calibration aims, you may need to repeat the calibration process more than once to reach aim. See "Calibration Failure" on page 72.

The Calibration Procedure

To automatically calibrate a monitor:

1. Click **Auto** from the drop-down **Display Mode** menu if it isn't already selected.

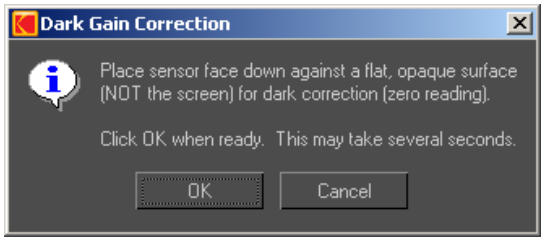
NOTE

Auto mode is only available if you have connected the enable cable to your computer.

2. Click the **Calibrate** icon. 

If this is the first time that you have calibrated your current monitor, follow the on-screen prompts to run a monitor evaluation. See "Monitor Evaluation" on page 33.

*Either the **Calibration** window opens or you are prompted to perform a Dark Gain Correction to reset the sensor.*



If you are prompted to perform a Dark Gain Correction:

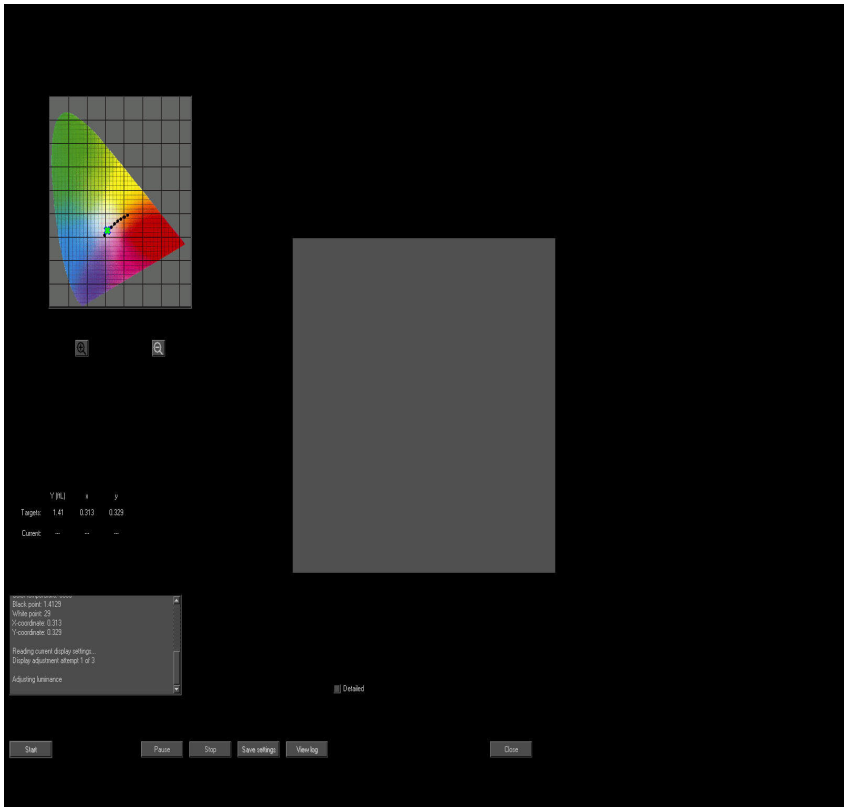
a) Place the sensor on a dark surface and make sure that no light can reach it. Do not attach the sensor to the monitor for this correction.

b) Click **OK**.

IMPORTANT

If the Dark Gain Correction fails, see "Dark Gain Correction Failure" on page 74.

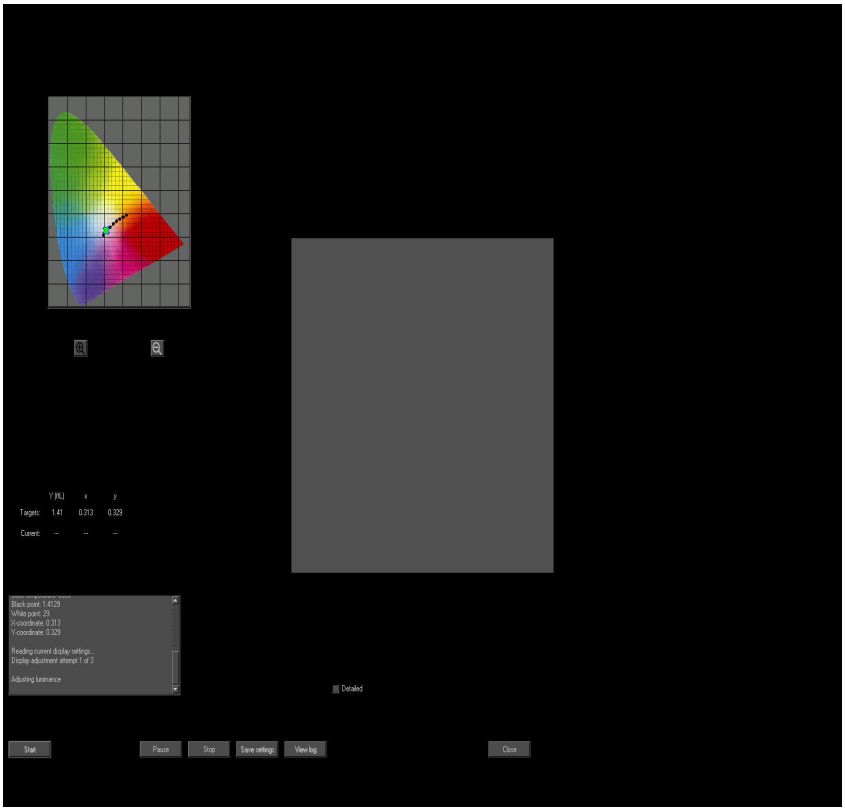
The Calibration window opens when the dark correction is complete.



3. Position the sensor in the center of the patch.
4. Select **Detailed** if you want a detailed log to be written. (Recommended)
5. Cover the monitor and sensor with a dark cloth if you are not able to turn off the room lights.
6. Click **Start**.

   The sensor measures a series of patches. A log is written, target values are displayed and points are plotted on a chromaticity diagram.

The process may take several minutes. You can click **Pause** if necessary.



NOTE

During the final stage of the calibration process, the gamut and log information are hidden.

If automatic calibration is successful, automatic characterization begins immediately after calibration is complete.

If automatic calibration was not successful, you may need to calibrate one or more times. See “Calibration Failure” on page 72.

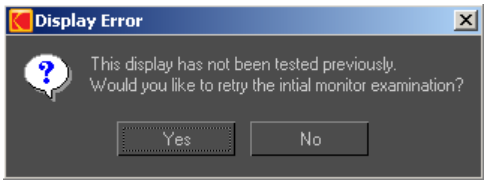
Monitor Evaluation

The first time that you initiate an automatic calibration, the system performs an evaluation of your monitor to determine if it can be automatically calibrated. If you change monitors, the system runs the evaluation again when you initiate automatic calibration.

To evaluate your monitor:

1. With an enable cable and sensor connected to your system and the Auto mode enabled, click **Calibrate**.

   The following window opens.



2. Click **Yes**.

   IMPORTANT

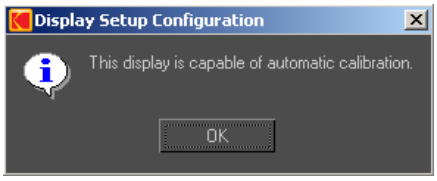
   *You must select **Yes** and perform this evaluation in order to automatically calibrate your monitor.*

   The following window opens.

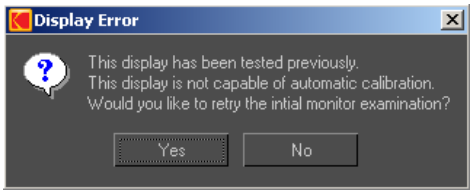
3. Attach the sensor and click **OK**.

   The system reads a series of patches and displays the results.

If your monitor can be automatically calibrated, the following message appears. Click **OK**.



If your monitor cannot be calibrated, the following message appears. Click **Yes** to retry.



You must switch to **Manual** display mode and manually calibrate your monitor if it cannot be automatically calibrated. See "Manual Calibration" on page 34.

Manual Calibration

You can manually calibrate your display by adjusting the white and black points from your monitor controls.

Use this method to manually calibrate your display if:

- You are using an IRIX system
- You are displaying your images on an HD/SD display
- The enable cable does not recognize your monitor
- You were unable to successfully calibrate your monitor automatically
- You have an LCD monitor

Use the colorbars target provided with your Display Manager System to assist you in making these adjustments.

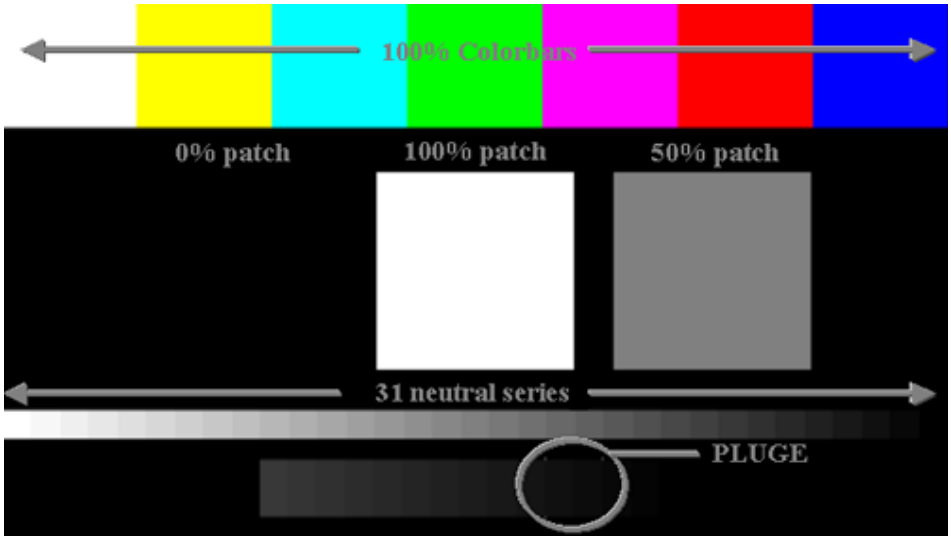
If using a digital projector, set the projector to the manufacturer's defaults.

To manually calibrate a monitor or HD/SD display:

1. Select **Manual** from the drop-down **Display Mode** menu, if it isn't already selected.

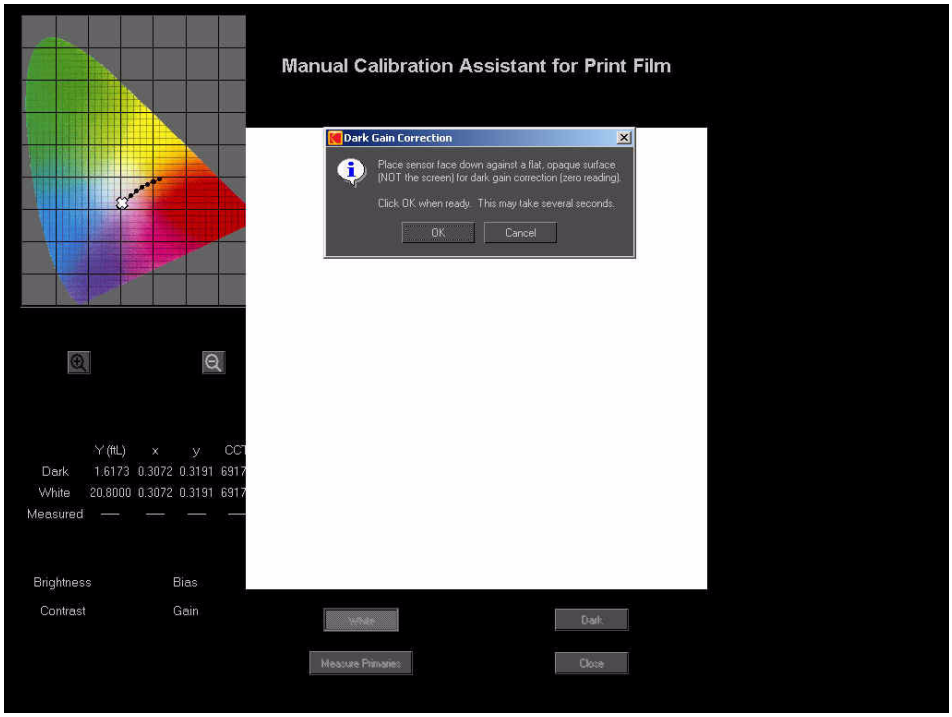
2. From your imaging product, display the colorbars target that came with the Display Manager System. Adjust the display brightness and contrast until the pluge target blends into the background.

   The colorbars target file is found on the Display Manager System installation CD. Go to **Images/ColorBar.dpx**.



3. Click the **Calibrate** icon. 

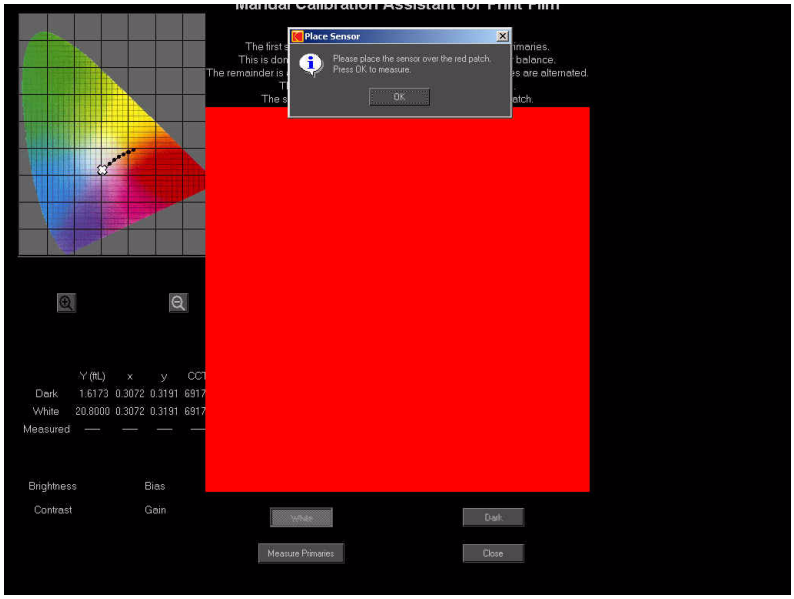
   The following window opens.



4. Place the sensor face down against a flat, opaque surface (not the screen) for dark gain correction (zero reading). Click **OK** when ready.

   This may take several seconds.

5. Click **Measure Primaries**.



6. Place the sensor over the red patch. Click **OK** to measure.
7. Repeat step 6 for the green and the blue patches.
8. Measure white luminance:
   a) Place the sensor on the white patch.
   b) Click **Measure Once** or **Measure Continuous**.
   c) Examine the results and adjust your display, referring to the instructions on the screen.
   d) If you clicked **Measure Once** in step b, repeat steps b and c until a pop-up informs you that white luminance is within tolerance.

   NOTE

   Leave the sensor attached.

9. Measure white chromaticity:
   a) Repeat steps 8b - 8d until white chromaticity is within tolerance.
10. Measure dark chromaticity:
    a) Repeat steps 8b - 8d until dark chromaticity is within tolerance.

11. Repeat steps 8, 9, and 10 to verify that all values are within tolerance.

NOTE

The plot indicates where you are versus aim. Use the magnify buttons  to zoom in and out on the plot.

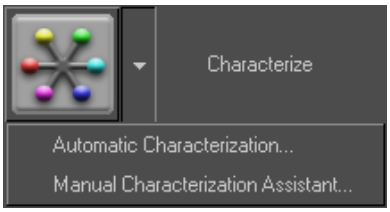
12. Click **Close**.
13. Proceed to "Characterization" on page 39.

CHARACTERIZATION

Characterization determines the gamma response of the calibrated monitor and tracks monitor primary colors. You should perform a characterization after each calibration.

The system uses the .chr file written during characterization to create a 3D LUT that can be exported to any supported imaging products.

From the **Characterize** drop-down menu on the main window, choose either **Automatic Characterization** or **Manual Characterization Assistant**.



Use **Automatic Characterization** if you performed automatic calibration or for devices such as LCD or CRT displays that were NOT auto calibrated.

Use the **Manual Characterization Assistant**, if you performed a manual calibration for an HD/SD display or digital projector.

Automatic Characterization

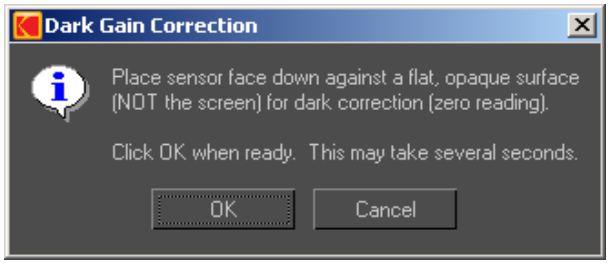
NOTE

If you successfully completed an automatic calibration, characterization will automatically run. In this case, proceed to "Viewing and Customizing Looks" on page 47.

To automatically characterize your monitor:

1. From the Characterize drop-down menu, click **Automatic Characterization**.

Either the Characterization window opens or you are prompted to perform a Dark Gain correction to reset the sensor.



If you are prompted to perform a Dark Gain Correction:

a) Place the sensor on a dark surface and make sure that no light can reach it. Do not attach the sensor to the monitor for this correction.

b) Click **OK**.

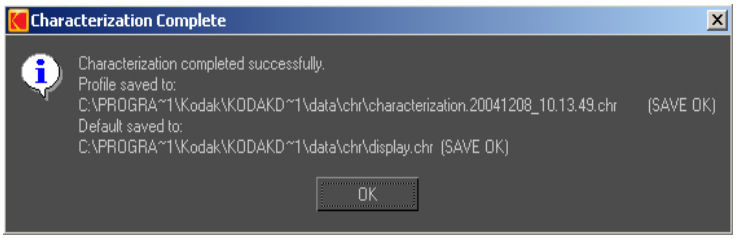
IMPORTANT

If the Dark Gain Correction fails, see "Dark Gain Correction Failure" on page 74.

The Automatic Characterization window opens when the correction is complete.

2. If the sensor is not already positioned, place it on the center of the screen. See “Step 2: Connect the Hardware” on page 11.
3. Cover the monitor and sensor with a dark cloth if you are not able to turn off the room lights.
4. Click **Start**.

   The application reads a series of patches. This process may take several minutes.
5. Click **OK** when you are notified that the characterization has finished.



You can now create and apply a 3D LUT to emulate the print look or video look. See “Viewing and Customizing Looks” on page 47.

If you want more information on the quality of the calibration and characterization, see “Verifying the Monitor Setup” on page 63

If characterization failed, see “Characterization Failure” on page 73.

Manual Characterization

Use the Manual Characterization Assistant to characterize a display, such as a digital projector or HD/SD display. Patches for use in characterizing HD/SD displays and digital projectors are available on the KODAK Display Manager System CD in the **Images/Patches** folder. The patches can also be displayed from one of the following KODAK Video Tapes:

- KODAK Display Manager Dual-Length Color Patch Set / D5-HD Tape #D5C63M, 1080i/50
- KODAK Display Manager Dual-Length Color Patch Set / D5-HD Tape #D5C63M, 1080i/59.94
- KODAK Display Manager Dual-Length Color Patch Set / Digital BETACAM Tape #BCT-D64, NTSC
- KODAK Display Manager Dual-Length Color Patch Set / Digital BETACAM Tape #BCT-D64, PAL
- KODAK Display Manager Dual-Length Color Patch Set / HDCAM Tape #BCT-64HD, 1080i/50
- KODAK Display Manager Dual-Length Color Patch Set / HDCAM Tape #BCT-64HD, 1080i/59.94

The tapes contain 15 sec. patches for use with SEQUEL and X-RITE sensors and 40 sec. patches for use with the PHOTO RESEARCH PR-650 and MINOLTA CS-100A sensors. A slate indicates the start of each patch set.

NOTES:

- If you use a KODAK video tape for manual characterization, the measurements may be automatically entered into the Manual Characterization Assistant (depending on the device you are using).
- When manually characterizing, you can create and save characterization templates containing set patches and then load these templates as needed.
- You can also load a .chr file into the Assistant, if you want to confirm measurements on a set of patches, or to view data from a previous characterization.
- If you stop the characterization process before reading all of the color patches, save your work by going to **File > Save Interim Characterization File**. When you restart your work, load this file by going to **File > Load Interim Characterization File**.

To manually characterize:

NOTE

As you enter data, the plots update. This allows you to track possible errors in your data. Use the magnify buttons  to zoom in or out on the plot.

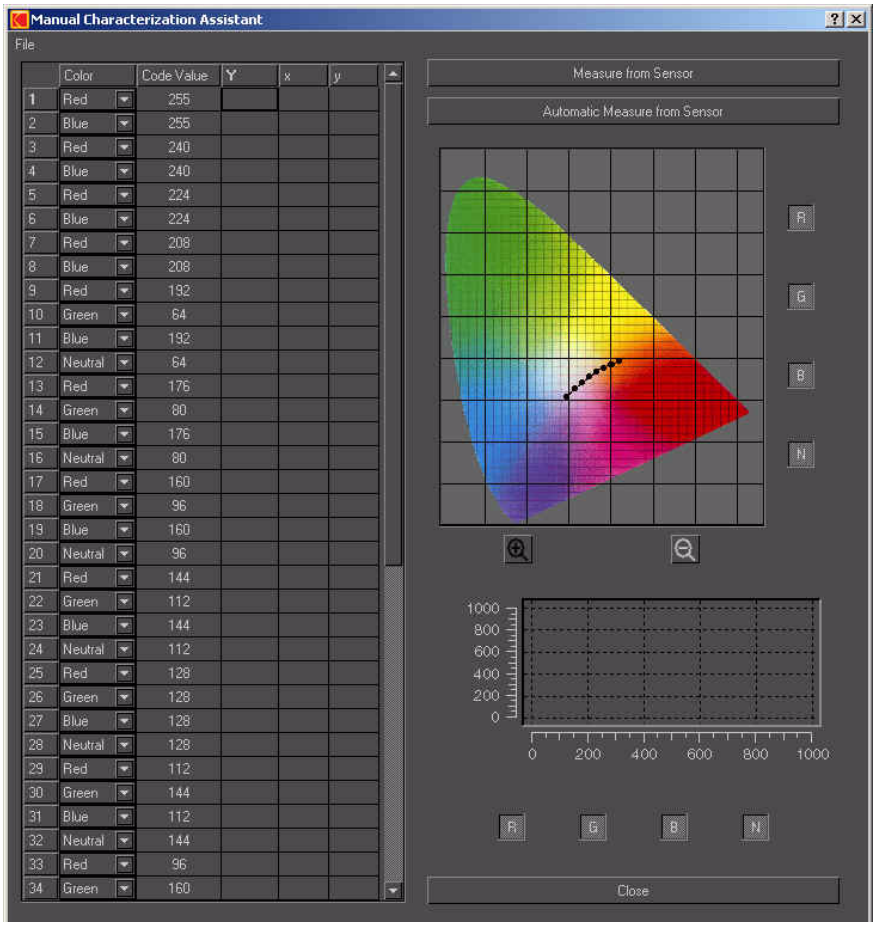
1. Load the .dpx color patch files from the Display Manager System CD onto your computer. The files are located in the **Images/Patches** folder.

   OR

   Load one of the KODAK video tapes.

2. From the Characterization drop-down menu on the main window, click **Manual Characterization Assistant**.

   The following window opens.



3. (Optional) Edit the table, if necessary. See "Editing a Characterization Table" on page 45.

4. Project the first color patch.

5. For an HD/SD device:
   a) Position the sensor on the color patch.
   b) Click one of the following options:

      Automatically Measure from Sensor to allow the software to automatically move through the color patches and enter the data. This method can be used with either the .dpx images (if you create a sequence from the images) or with a KODAK Video Tape. Within the software that you are using to display the images, set the patch duration to 15 seconds per patch (for use with X-RITE and SEQUEL Sensors).

      Measure from Sensor to allow the sensor to read and enter data from one color patch at a time. You must click this button for each color patch that is displayed.
6. For a digital projector:
   a) Use a colorimeter or spectrophotometer to measure the patches.

      We recommend the MINOLTA CS-100A or the PHOTO RESEARCH PR-650.
   b) Click one of the following options:

      Automatically Measure from Sensor to allow the software to automatically move through the color patches and enter the data (for use with MINOLTA CS-100A or PHOTO RESEARCH PR-650 devices that are connected to the computer). If you're using the MINOLTA CS-100A or the PHOTO RESEARCH PR-650, set the patch duration to 40 seconds per patch. This method can be used with either the .dpx images (if you create a 40 sec. per patch sequence from the images) or with a KODAK Video Tape (using the 40 sec. sequence).

      Measure from Sensor to allow the sensor to read and enter data from one color patch at a time. You must click this button for each color patch that is displayed.

   NOTE

   You can also import files created by the MINOLTA CS-100, MINOLTA CS-100A, or PHOTO RESEARCH PR-650. Go to **File > Import External Measurements** and import the appropriate file. The table is populated with the data in the file.
7. When you are finished, click **File > Save Characterization File**.

IMPORTANT

To accurately emulate the print film look or video look on your display, you must load this characterization file in the Viewer. This information is used by the Viewer to create a 3D LUT. See "Creating a Print Film Look" on page 54 *or* "Creating a Video Look" on page 55.

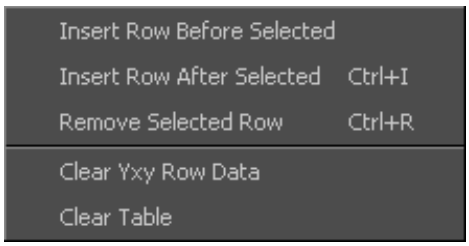
Editing a Characterization Table

1. Add and remove rows of data as needed.

   IMPORTANT

   Do not add or remove rows if you are using a KODAK Video Tape or if you are using the complete set of .dpx patches supplied on the CD.

   Right-click (WINDOWS, IRIX, LINUX Operating Systems) or Control + click (MAC OS) on a line to display a pop-up menu from which you can insert or remove rows.

2. Enter the desired code value for the row.
3. Use the drop-down menu in each color cell to identify the color.

   NOTE

   If you edit the table in this manner, you should save it as a template for later use. Go to **File > Save Template**.

Shortcut Keys for the Assistant

Task	WINDOWS/IRIX/ LINUX	MACINTOSH
Load Default	Ctrl + d	Command + d
Load Template	Ctrl + l	Command + l
Save Characterization File	Ctrl + s	Command + s
Save Template	Ctrl + t	Command + t
Close	Ctrl + q	Command + q
Insert Row after Selected	Ctrl + i	Command + i
Remove Selected Row	Ctrl + r	Command + r

NOTE

The MACINTOSH Command key looks like this: ⌘

VIEWING AND CUSTOMIZING LOOKS

After you have successfully calibrated and characterized your display, you can view images with a specific look applied and export a 3D LUT that contains the look.

The LUT can be imported by supported imaging products to visualize real time, or near real time, playback of images simulating a projected print or a video look.

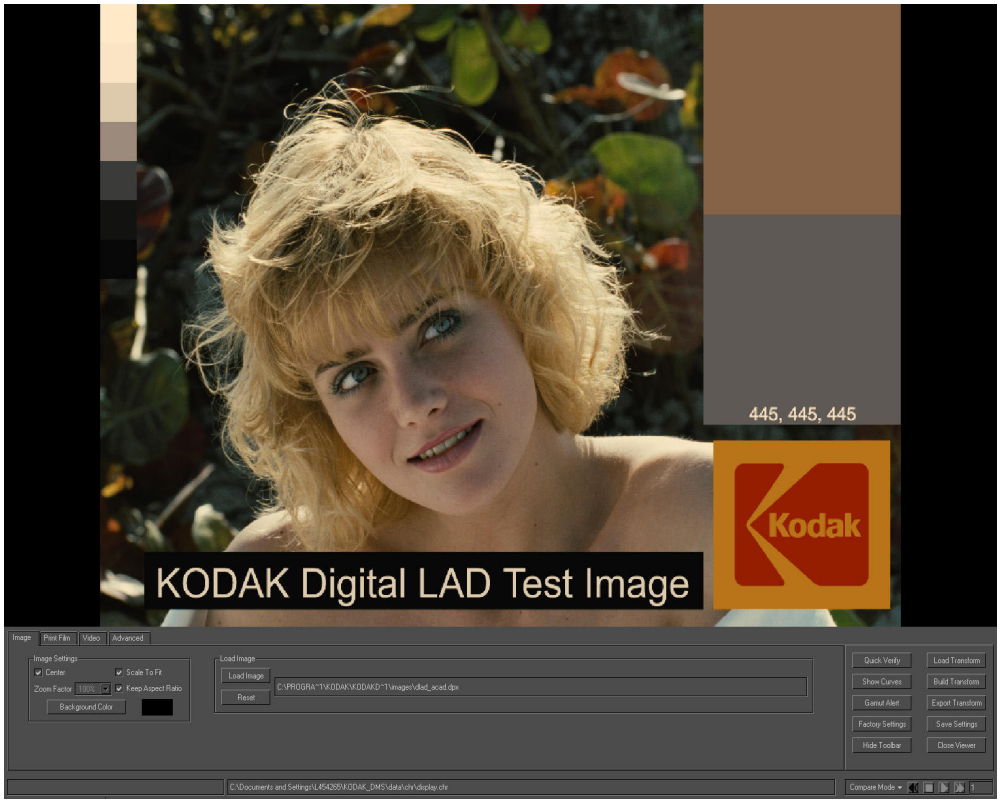
Opening the Viewer

To open the Viewer:

From the main window, click the **Viewer** icon**.** 

You may be prompted to locate an image file to load into the Viewer.

A window similar to the following opens. The features that are available depend on the type of license you purchased.



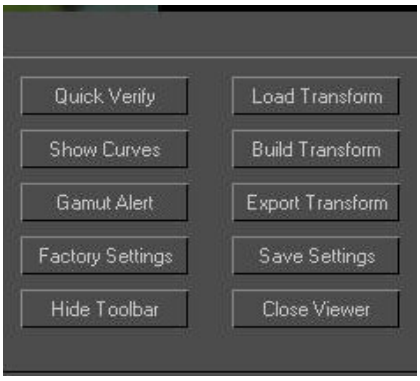
Using the Viewer

The Viewer appears at full screen size with the image at the top and a toolbar at the bottom. To enlarge the viewing area, you can hide the toolbar.

To open **What's This** topics in the Viewer, right-click (WINDOWS, IRIX, LINUX) or Control + click (MACINTOSH) an item in the toolbar.

Global Options

At the right-hand side of the toolbar are common Viewer options available at all times.

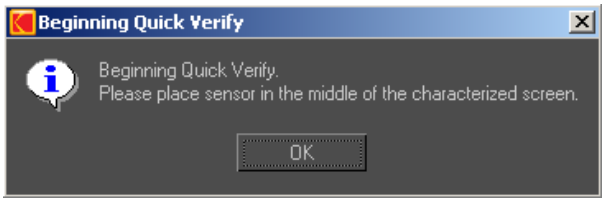


- **Quick Verify**: Click to run a short verification to determine if your monitor is still within calibration. This process reads a few color patches and assesses against your original calibration aims. To perform a full verification, see "Verifying" on page 63.

  To Quick Verify:

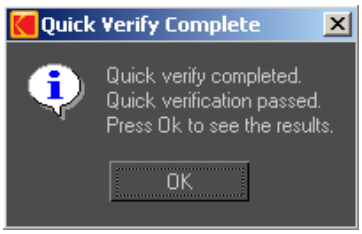
  1) Click **Quick Verify** on the Viewer toolbar.

     The Viewer becomes a black patch and the following window opens.

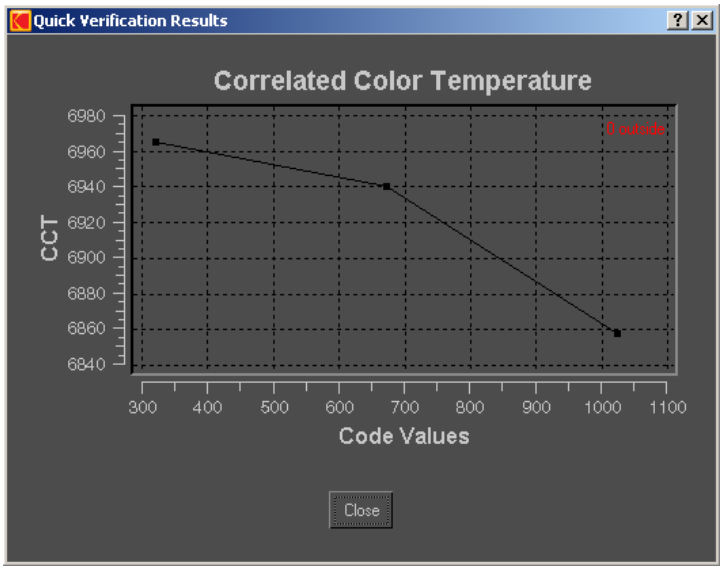
  2) Position the sensor over the patch and click **OK**.

When verification is complete a window similar to the following appears.



3) Click **OK.**

A chart with the results is displayed.



This graph shows the tracking of the grayscale CCTs across the range of code values that were measured. The red lines indicate the tolerance levels that you entered on the setup window. These lines appear if the scale warrants. See "Tolerances Setup" on page 26

- **Show Curves**: Click to display the characteristic curves or neutral scale of the look you've created.
- **Gamut Alert**: Select this option if you want to be alerted to colors that are within the print film or video gamut but are out of gamut for your display.
- **Factory Settings**: Click to return to the default factory settings.
- **Hide Toolbar**: Click to hide the toolbar. To reopen the toolbar, right-click (WINDOWS, IRIX, LINUX) or Control + click (MACINTOSH) in the image and select **Show Viewer Toolbar**.

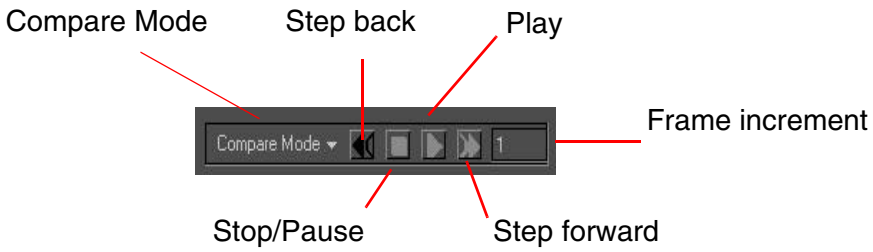
- **Load Transform**: Click to open a browser window where you can select a transform to apply to the image. A transform can be either a characterization file (.chr), an encrypted 3D LUT (.e3d), or a 3D LUT (.3dl). For a digital projector or HD/SD display, load the characterization file that you created using the **Manual Characterization Assistant**. See "Manual Characterization" on page 42. The file that you load here should be the characterization data that you want to use, or a previously created 3D LUT that you would like to apply to an image.
- **Build Transform**: Click to apply the look to the image in the Viewer.
- **Export Transform**: Click to save a LUT to a file. Generally LUTs are encrypted and can be imported by supported imaging products. For some license types, unencrypted LUTs can be exported.
- **Save Settings**: Click to save the settings for the look you create. If you save as **kdm.ini**, the system loads those settings when it opens.
- **Close Viewer**: Click to close the Viewer and return to the main window.

Playback Controls

The Playback Controls are at the bottom left of the Toolbar. These controls allow you to move forward and backward through images in a directory and to compare the effect of different LUTs.

NOTE

With the exception of Compare Mode, playback controls are disabled if you are not working with a sequence of images.



- **Compare Mode**—Click to display a list of ways to compare two LUTs. When you load a transform (see below), then choose a Compare Mode, swiping your mouse across the screen displays both the original and the new look side by side (Hor. Swipe), top and bottom (Ver. Swipe), or in a horizontal or vertical butterfly view.

  NOTE

  Click **No compare** to turn off Compare Mode.
  Click **Reset Image** to change the comparison image.
  Click **Reset Transform** to use the current transform as the comparison transform.

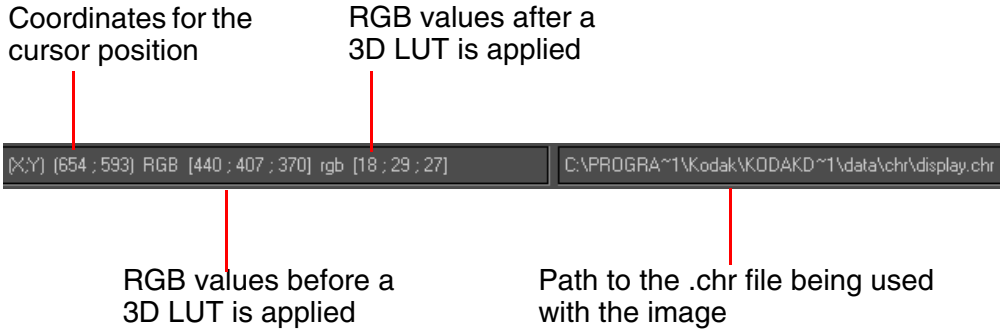
- **Step back**—Click to step back one frame.
- **Play**—Click to move the number of frames indicated by the Frame Increment.
- **Stop/Pause**—Click to pause the playback.
- **Step forward**—Click to step forward one frame.
- **Frame increment**—Enter the increment of frames to display.

NOTE

Playback speed is dependent on the computer system.

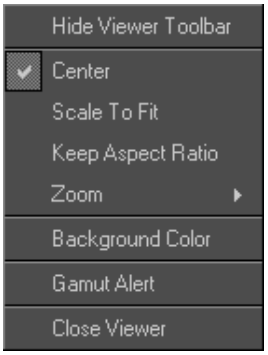
Toolbar Information

Image information appears in the lower-left corner of the Viewer toolbar.



Pop-up Options

Right-click (WINDOWS, IRIX, LINUX) or Control + click (MACINTOSH) in the image for a pop-up menu which includes access to some of the global options.



Viewer Shortcut Keys

Use the following shortcut keys to control the Viewer.

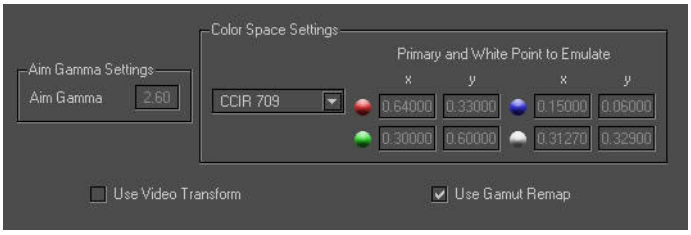
Task	Key
Keep aspect ratio	k
Quit	q
Scale to fit	s
Toggle **Center** on and off	c
Toggle the display of out-of-gamut colors on and off	g

NOTE

To use the Viewer Shortcut keys, first click the mouse within the image to make it the active area.

Creating a Print Film Look

Selections pertinent to emulating print film are available in the Print Film tab.



To create a print film look:

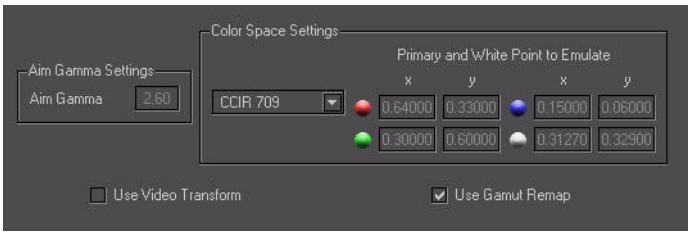
1. Open the Viewer. See "Opening the Viewer" on page 47.
2. Load an image. See "Loading an Image" on page 56.
3. Click **Load Transform** to select and load the appropriate .chr transform.
4. Click the **Print Film** tab if it is not already selected.

   NOTE

   This tab is not available if you load a .3dl transform.
5. Select the appropriate settings.
   - **Printer Lights**: Adjust the printer lights with the slider bars.
   - **LAD values**: Enter the desired LAD values.
   - **Status A:** If you measure the Status A densities of your LAD patch, you can enter those values here. The default values shown are the typical Status A aim values for LAD.
   - **Film**: Select the print film type that you want to emulate.
   - **Use Print Film Transform**: Select to enable the print film look and apply the selections that you make on this tab. (If unchecked, the settings selected on the **Video** tab are used.)
   - **Use Gamut Remap**: Select to enable gamut remapping. Select the type of remapping on the **Advanced** tab. To disable gamut remap, deselect this checkbox. See "Gamut Remap Settings" on page 58.
6. Click **Build Transform** to display your changes in the Viewer.
7. Click **Export Transform** to save the 3D LUT you have created.

Creating a Video Look

To properly emulate the video look, you must use the Video tab.



To create a video look:

1. Open the Viewer. See "Opening the Viewer" on page 47.
2. Load an image. See "Loading an Image" on page 56.
3. Click **Load Transform** to select and load the appropriate .chr transform.
4. Click the **Video** tab.

   NOTE

   This tab is only available if you load a .chr transform.

5. Select the appropriate settings.
   - **Aim Gamma Settings**: Type the appropriate value to set the display on a specific gamma. (You can only adjust this setting when the color space is set to User Defined.)
   - **Color Space Settings**: Select the appropriate color space from the drop-down list — CCIR 709 or SMPTE RP145. Or select **User Defined** from the list and type in the specific values.
   - **Use Video Transform**: This option is only available if you have both a Print Film Edition and VISION2 HD System Edition. Select this option to enable the video look and apply the selections that you make on this tab. (If unchecked, the settings selected on the **Print Film** tab are used.)
   - **Use Gamut Remap**: Select to enable gamut remapping. Select the type of remapping on the **Advanced** tab. To disable gamut remap, deselect this checkbox. See "Gamut Remap Settings" on page 58.
6. Click **Build Transform** to display your changes in the Viewer.
7. Click **Export Transform** to save the 3D LUT you have created.

   NOTE

   If using the KODAK VISION2 HD System, use the default values when working with typical NTSC HD display. To export transforms for use in the KODAK VISION2 HD System Digital Processor, select the appropriate exportation file type to ensure that the correct encrypted xml file is created.

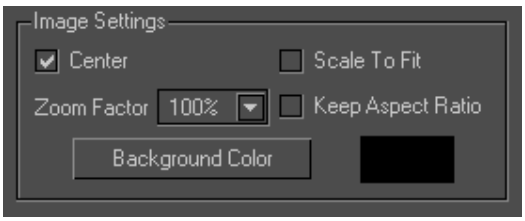
Loading an Image

1. From the **Images** tab in the Viewer toolbar, click **Load Image**. Browse for and select an image.

   The system recognizes .dpx or .cin images when creating a print look; and .tif (with video content) when creating a video look.

   *The image appears in the Viewer with the look that was defined by the currently selected .chr file. See **Load Transform** in* "Global Options" on page 48.

2. From the **Image Settings** pane, select how you want the image to appear in the Viewer.



- **Center**: Select to center the image on the screen.
- **Scale To Fit**: Select to allow the image to fill the screen.
- **Keep Aspect Ratio**: Select along with **Scale To Fit** so that the image fills as much of the screen as possible while keeping its aspect ratio.
- **Zoom Factor**: Select a value from the drop-down menu to display the image at various percentages. This option is not available if the **Scale to Fit** option is selected.
- **Background Color**: Click to display a color selection window where you can choose a background color for the Viewer.

NOTE

Many of these options are also available in the pop-up Options window (page 52).

Advanced Options

The **Advanced** tab of the Viewer contains options for further refining the viewed and exported looks.

Framing Settings

On the **Advanced** tab of the Viewer, click **Framing** to select an aspect ratio. Use the drop-down menu to select the appropriate aspect ratio of your final output.

A dotted line appears on the image indicating the portion of the image included in that frame size.

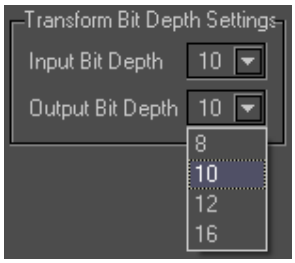
Gamut Remap Settings

On the **Advanced** tab, click **Gamut Remap** to select the type of remapping.

Mode	Description
Constant Hue with Variable Lightness Target (Recommended)	Within each hue plane, colors are gamut mapped towards the Lightness axis. The aim on the axis is dependent on the position of the color relative to the maximum Chroma point in that hue plane.
Constant Hue and Lightness (Version 2.x Default)	Within each hue plane, out of gamut colors are mapped to the gamut boundary towards a point on the Lightness axis with the same Lightness (L*) as the original color.

Transform Bit Depth

On the **Advanced** tab, click **Transform Bit Depth** to increase or decrease the input and output bit depth. The following options are displayed.



From the **Input Bit Depth** drop-down menu, select the actual bit depth of the image you are viewing.

From the **Output Bit Depth** drop-down menu, select the bit depth that you want to view the image at.

For most Display Manager System uses, keep the bit depths at 10-bit input and 10-bit output or 8-bit input and 8-bit output.

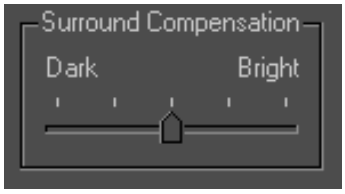
For .tif images, 8-bit input and 8-bit output are common. You may, however want to use 8-bit input and 10-bit output. The bit depth is automatically set to 8-bit input and 8-bit output for 8-bit .tif and 16-bit input and 16-bit output for 16-bit .tif.

For .cin or .dpx images, 10-bit input and 10-bit output are common. You may, however, want to use 10-bit input and 12-bit output. The bit depth is automatically set to 10-bit input and 10-bit output on loading a .cin or .dpx image.

This feature is also useful if your imaging application software supports unusual bit depths.

Surround Compensation

On the **Advanced** tab, click **Surround Compensation** to correct for the effects of viewing in a suboptimal environment. The following option is displayed.



Click and drag the slider bar to match the lighting conditions in your area.

IMPORTANT

Work in a dark environment whenever possible.

Recorder Compensation

The state of your recorder impacts the look of the final print. Use the recorder compensation feature to enter information about the specific recorder state so that the impact of this device is included in the print emulation shown through the KODAK Display Manager System. There are two options:

- Neutral-based compensation
- Neutral- and color-based compensation

1. Record a test strip of neutrals or of colors and neutrals onto EASTMAN Color Intermediate Stocks - either 5242 or 2242.

   NOTE

   For neutral compensation, use your standard recorder control strip. For neutral and color-based compensation, record the patch frames supplied on the KODAK Display Manager System CD.

2. Measure the Status M values of the patches.

   Neutral-based compensation: measure all patches on control strip.

   Neutral-or color-based compensation: measure 116 patches (supplied on CD).

3. Prepare a text file (.txt).

   Example file (neutral-based compensation)

   Column 1 is the neutral code value. Columns 2 - 4 are Status M values. For comments, start a line with a #, then enter the comment.

DMIN	0.085	0.549	0.621
0	0.085	0.55	0.622
51	0.165	0.623	0.748
102	0.263	0.716	0.839
153	0.356	0.838	0.948
204	0.447	0.957	1.061
255	0.533	1.049	1.157
306	0.621	1.135	1.258
357	0.71	1.229	1.362
408	0.801	1.323	1.47
459	0.894	1.42	1.577
510	0.989	1.512	1.68
714	1.371	1.896	2.099
...	...	...	...

Example file (neutral- and color-based compensation).

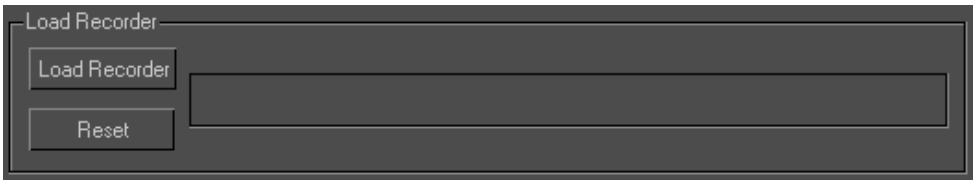
Columns 1 - 3 are RGB code values. Columns 4 - 6 are Status M values. For comments, start a line with a #, then enter the comment.

DMIN	DMIN	DMIN	0.085	0.549	0.621
20	10	0	0.085	0.55	0.622
71	61	51	0.165	0.623	0.748
122	112	102	0.263	0.716	0.839
173	163	153	0.356	0.838	0.948
224	214	204	0.447	0.957	1.061
275	265	255	0.533	1.049	1.157
326	316	306	0.621	1.135	1.258
377	367	357	0.71	1.229	1.362
428	418	408	0.801	1.323	1.47
479	469	459	0.894	1.42	1.577
...	...	...	...	...	...

NOTE

A template including the code values of the provided patches is included on the Display Manager System CD.

4. On the **Advanced** tab, click **Recorder Compensation**.



5. Click **Load Recorder,** then locate and select the appropriate .txt file.

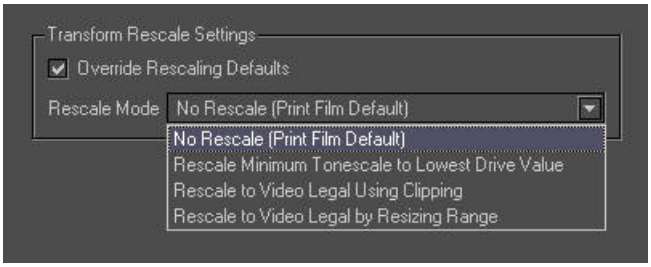
NOTE

The Display Manager System uses this information when applying a 3D LUT to an image in the viewer. This compensates for the difference between the recorder and an aim recorder.

6. Click **Reset** to clear the text field.

Transform Rescale

On the **Advanced** tab, click **Transform Rescale** to control how the range of the display is used. The following options are displayed.



Select **No Rescale (Print Film Default)** if you are creating a print film look.

If you select **Rescale Minimum Tonescale to Lowest Drive Value**, your blacks will be blacker but some other colors will not be displayed accurately.

If you select **Rescale to Video Legal Using Clipping**, code values less than 64 move to 64, and code values greater than 940 move to 940.

If you select **Rescale to Video Legal by Resizing Range**, code values from 0 - 1023 compress to 64 - 940.

VERIFYING

The Verify feature allows you to view additional information on the success of the monitor setup and print simulation. Verification provides a means for tracking trends in the data, such as sensor or monitor degradations.

IMPORTANT

You should perform a verification whenever your images do not look right. You cannot verify on an HD/SD display or digital projector.

If the verification fails, you may need to replace the sensor or the monitor.

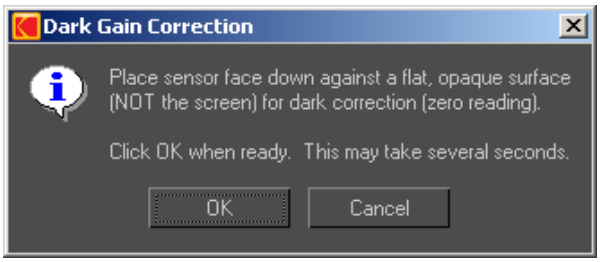
To quickly check to see if your monitor is starting to drift out of calibration, use the Quick Verify feature on the Viewer window. See "Global Options" on page 48.

Verifying the Monitor Setup

To verify monitor setup:

1. From the main window, click the **Verify** icon. 

   Either the Verification window opens or you are prompted to perform a Dark Gain correction to reset the sensor.



If you are prompted to perform a Dark Gain Correction:

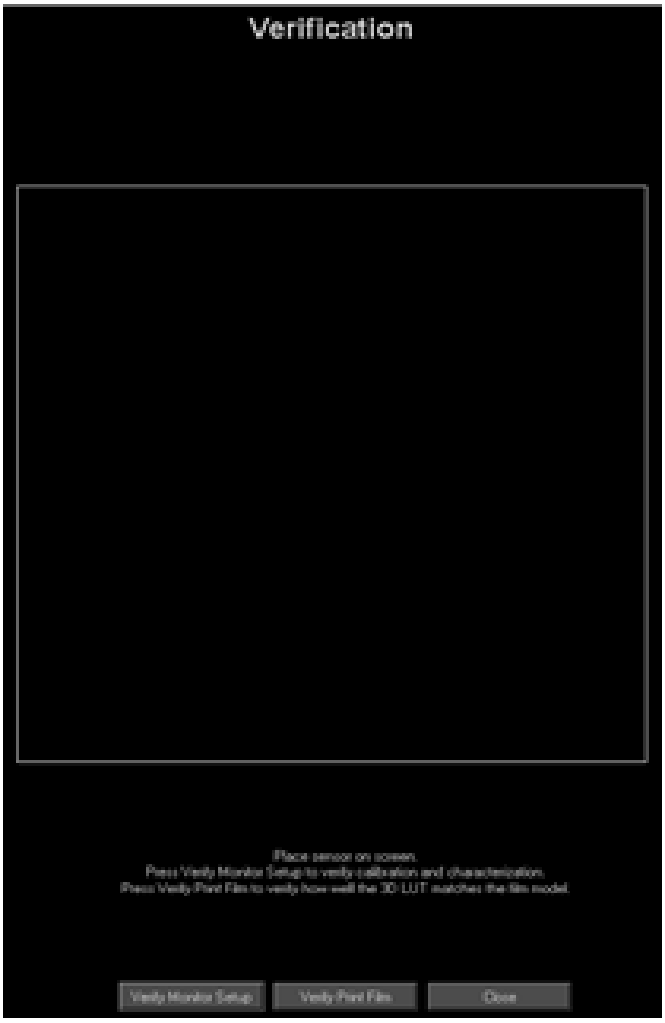
a) Place the sensor on a dark surface and make sure that no light can reach it. Do not attach the sensor to the monitor for this correction.

b) Click **OK**.

IMPORTANT

If the Dark Gain Correction fails, see "Dark Gain Correction Failure" on page 74.

The Verification window opens when the correction is complete.



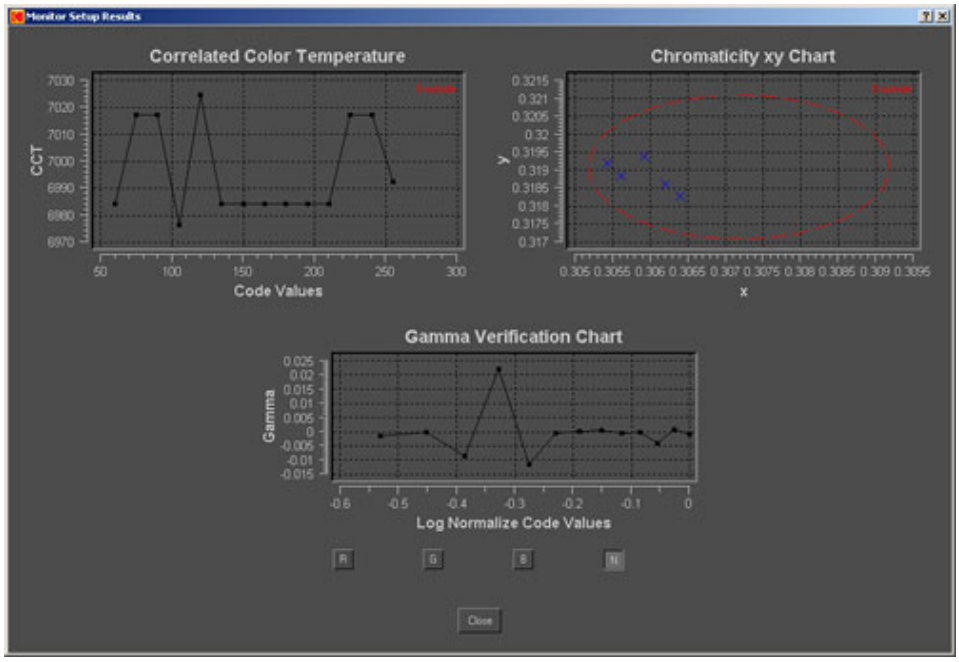
2. If the sensor is not already in place, position it in the center of the screen. See “Step 2: Connect the Hardware” on page 11.
3. Cover the monitor and sensor with a dark cloth if you are not able to turn off the room lights.
4. Click **Verify Monitor Setup** on the Verification window.

   The Display Manager System projects and measures a series of colored patches.

   When verification is complete, the **Verify Monitor Setup** button changes to read **Monitor Setup Results** and you are notified if verification was successful.

5. To view the results, click **Monitor Setup Results**.

   Three graphs are displayed.



- **Correlated Color Temperature**: This graph shows the tracking of the grayscale CCTs across the range of code values that were measured. The red lines indicate the tolerance levels that you entered on the Setup window. These lines appear if the scale warrants. See "Tolerances Setup" on page 26
- **Chromaticity xy Chart**: This diagram shows the tolerance you defined. The Xs indicate the chromaticities over a range of gray patches and indicate how well your neutrals track.
- **Gamma Verification Chart**: This chart shows the gamma response of the monitor for each R, G, B, N series. Ideally the values fall in a straight line. Click the color channel that you want to view.

If the values are out of tolerance, you can continue to use your monitor as long as the colors are acceptable to you.

The system writes a verification results file containing the xyY and color temperature data for each of the measured patches. The file is time and date stamped so that you can plot trends over time, if desired. To view the verification files, in the Display Manager system main folder go to **data > verify**.

Verifying the Print Film Look

Verify the print film look to measure the quality of the print film simulation.

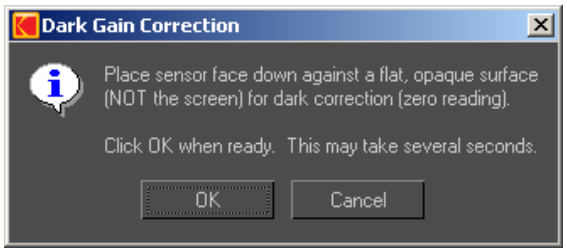
NOTE

This feature is not available in the VISION2 HD System Edition. Also, you cannot verify a print film look created for a digital projector or HD/SD display.

To verify the print film look:

1. From the main window, click the **Verify** icon. 

   Either the Verification window opens or you are prompted to perform a Dark Gain correction to reset the sensor.



If you are prompted to perform a Dark Gain Correction:

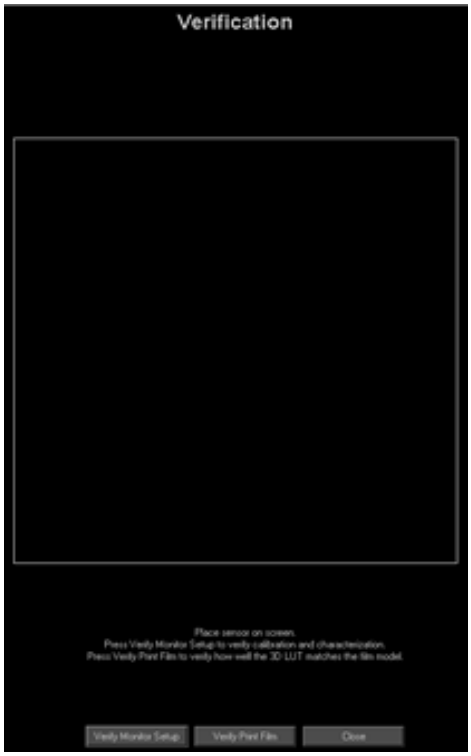
a) Place the sensor on a dark surface and make sure that no light can reach it. Do not attach the sensor to the monitor for this correction.

b) Click **OK**.

IMPORTANT

If the Dark Gain Correction fails, see "Dark Gain Correction Failure" on page 74.

The Verification window opens when the correction is complete.



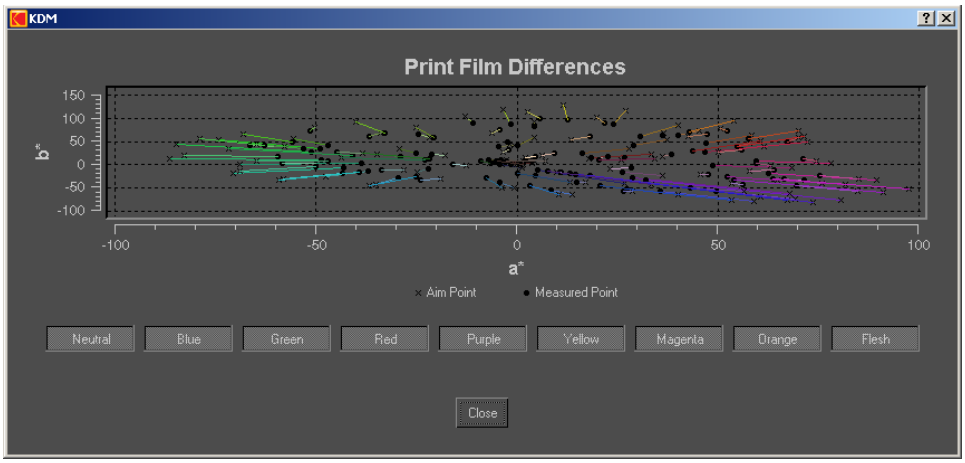
2. If the sensor is not already in place, position it in the center of the screen.
3. Cover the monitor and sensor with a dark cloth if you are not able to turn off the room lights.
4. Click **Verify Print Film Look** on the Verification window.

   The Display Manager System projects and measures a series of patches.

   *When verification is complete, the **Verify Print Film Look** button changes to read **Print Film Look Results,** and you are notified if verification was successful.*

5. To view the results, click **Print Film Look Results**.

   A graph is displayed.



The graph shows a CIELab a* b* plot. If there is a perfect match, the X and dot are on top of each other. The longer the distance between the X and the dot, the further apart the match is.

Click the color group buttons at the bottom to view only the data for that color group.

NOTE

Out-of-gamut colors will have longer lines.

Verification Logs

Verification logs are date and time stamped. All files are named **VerifySetup_Results** or **VerifyPrintFilm_Results**.

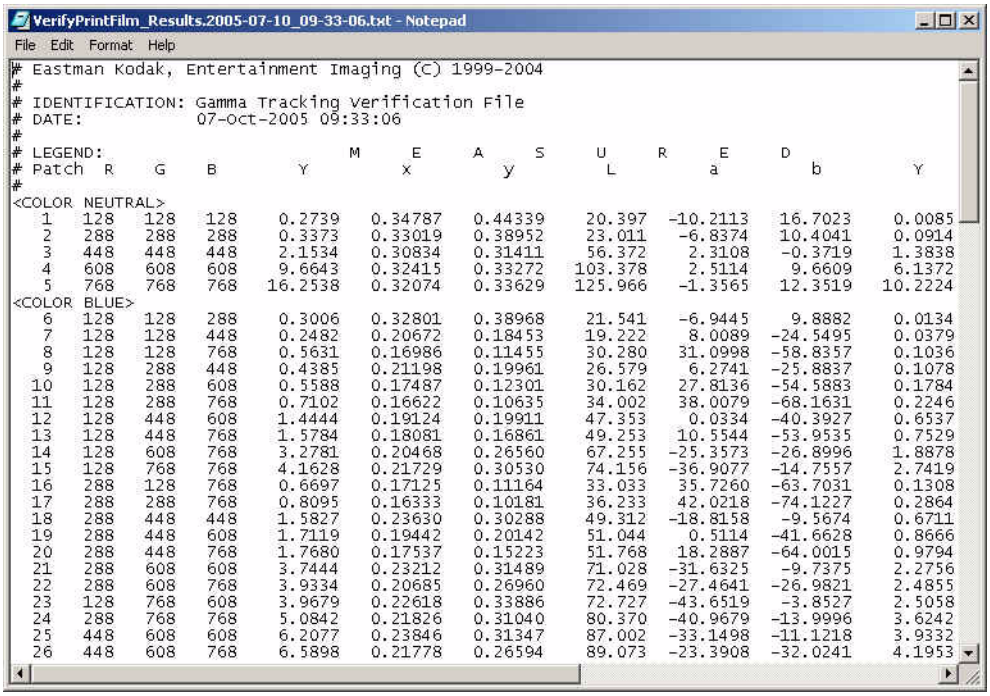
To view the verification files, in the Display Manager system main folder go to **data > verify**.

You can view these text files with applications such as WordPad or Excel. To identify trends in data, view the log files over a period of time. Open earlier versions of the log file and compare the data points to determine when values began to fail.

If verification results slowly degrade over time, the sensor or monitor may be failing due to age.

If verification suddenly fails, the sensor may be damaged or might have fallen off during verification.

Print Film Look Verification Log File

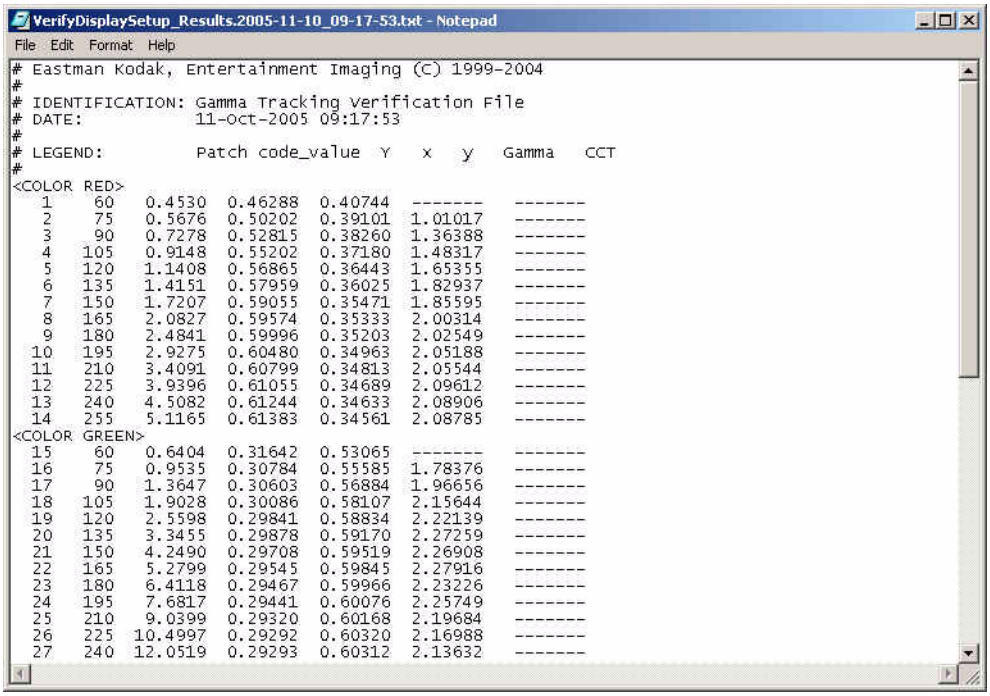


VerifyPrintFilm_Results.2005-07-10_09-33-06.txt - Notepad

File Edit Format Help

```
# Eastman Kodak, Entertainment Imaging (C) 1999-2004
#
# IDENTIFICATION: Gamma Tracking Verification File
# DATE:           07-Oct-2005 09:33:06
#
# LEGEND:                          M     E     A     S     U     R     E     D
# Patch  R    G    B        Y         x         y         L         a         b         Y
#
<COLOR NEUTRAL>
   1   128   128   128    0.2739    0.34787   0.44339   20.397  -10.2113   16.7023    0.0085
   2   288   288   288    0.3373    0.33019   0.38952   23.011   -6.8374   10.4041    0.0914
   3   448   448   448    2.1534    0.30834   0.31411   56.372    2.3108   -0.3719    1.3838
   4   608   608   608    9.6643    0.32415   0.33272  103.378    2.5114    9.6609    6.1372
   5   768   768   768   16.2538    0.32074   0.33629  125.966   -1.3565   12.3519   10.2224
<COLOR BLUE>
   6   128   128   288    0.3006    0.32801   0.38968   21.541   -6.9445    9.8882    0.0134
   7   128   128   448    0.2482    0.20672   0.18453   19.222    8.0089  -24.5495    0.0379
   8   128   128   768    0.5631    0.16986   0.11455   30.280   31.0998  -58.8357    0.1036
   9   128   288   448    0.4385    0.21198   0.19961   26.579    6.2741  -25.8837    0.1078
  10   128   288   608    0.5588    0.17487   0.12301   30.162   27.8136  -54.5883    0.1784
  11   128   288   768    0.7102    0.16622   0.10635   34.002   38.0079  -68.1631    0.2246
  12   128   448   608    1.4444    0.19124   0.19911   47.353    0.0334  -40.3927    0.6537
  13   128   448   768    1.5784    0.18081   0.16861   49.253   10.5544  -53.9535    0.7529
  14   128   608   768    3.2781    0.20468   0.26560   67.255  -25.3573  -26.8996    1.8878
  15   128   768   768    4.1628    0.21729   0.30530   74.156  -36.9077  -14.7557    2.7419
  16   288   128   768    0.6697    0.17125   0.11164   33.033   35.7260  -63.7031    0.1308
  17   288   288   768    0.8095    0.16333   0.10181   36.233   42.0218  -74.1227    0.2864
  18   288   448   448    1.5827    0.23630   0.30288   49.312  -18.8158   -9.5674    0.6711
  19   288   448   608    1.7119    0.19442   0.20142   51.044    0.5114  -41.6628    0.8666
  20   288   448   768    1.7680    0.17537   0.15223   51.768   18.2887  -64.0015    0.9794
  21   288   608   608    3.7444    0.23212   0.31489   71.028  -31.6325   -9.7375    2.2756
  22   288   608   768    3.9334    0.20685   0.26960   72.469  -27.4641  -26.9821    2.4855
  23   128   768   608    3.9679    0.22618   0.33886   72.727  -43.6519   -3.8527    2.5058
  24   288   768   768    5.0842    0.21826   0.31040   80.370  -40.9679  -13.9996    3.6242
  25   448   608   608    6.2077    0.23846   0.31347   87.002  -33.1498  -11.1218    3.9332
  26   448   608   768    6.5898    0.21778   0.26594   89.073  -23.3908  -32.0241    4.1953
```

Monitor Setup Verification Log



VerifyDisplaySetup_Results.2005-11-10_09-17-53.txt - Notepad

File Edit Format Help

```
# Eastman Kodak, Entertainment Imaging (C) 1999-2004
#
# IDENTIFICATION: Gamma Tracking Verification File
# DATE:           11-Oct-2005 09:17:53
#
# LEGEND:         Patch code_value  Y    x    y   Gamma   CCT
#
<COLOR RED>
   1     60    0.4530   0.46288   0.40744   -------   -------
   2     75    0.5676   0.50202   0.39101   1.01017   -------
   3     90    0.7278   0.52815   0.38260   1.36388   -------
   4    105    0.9148   0.55202   0.37180   1.48317   -------
   5    120    1.1408   0.56865   0.36443   1.65355   -------
   6    135    1.4151   0.57959   0.36025   1.82937   -------
   7    150    1.7207   0.59055   0.35471   1.85595   -------
   8    165    2.0827   0.59574   0.35333   2.00314   -------
   9    180    2.4841   0.59996   0.35203   2.02549   -------
  10    195    2.9275   0.60480   0.34963   2.05188   -------
  11    210    3.4091   0.60799   0.34813   2.05544   -------
  12    225    3.9396   0.61055   0.34689   2.09612   -------
  13    240    4.5082   0.61244   0.34633   2.08906   -------
  14    255    5.1165   0.61383   0.34561   2.08785   -------
<COLOR GREEN>
  15     60    0.6404   0.31642   0.53065   -------   -------
  16     75    0.9535   0.30784   0.55585   1.78376   -------
  17     90    1.3647   0.30603   0.56884   1.96656   -------
  18    105    1.9028   0.30086   0.58107   2.15644   -------
  19    120    2.5598   0.29841   0.58834   2.22139   -------
  20    135    3.3455   0.29878   0.59170   2.27259   -------
  21    150    4.2490   0.29708   0.59519   2.26908   -------
  22    165    5.2799   0.29545   0.59845   2.27916   -------
  23    180    6.4118   0.29467   0.59966   2.23226   -------
  24    195    7.6817   0.29441   0.60076   2.25749   -------
  25    210    9.0399   0.29320   0.60168   2.19684   -------
  26    225   10.4997   0.29292   0.60320   2.16988   -------
  27    240   12.0519   0.29293   0.60312   2.13632   -------
```

TROUBLESHOOTING

Refer to the following topics for help with the KODAK Display Manager System.

Calibration Failure

- Make sure that you are using a VGA monitor cable and that all the pins are present.
- If the monitor settings need a lot of adjustment to reach aim, you may need to repeat the calibration process several times to bring the monitor into tolerances. To more quickly bring the monitor settings closer to aim, reset the monitor to factory defaults as described in your monitor user manual.

  Track the progress of each calibration by observing the **Current** and **Target Values** displayed on the Calibration window. Repeat the calibration process as many times as necessary as long as the calibration points continue to move toward aim. If the points stop moving or they oscillate above and below aim, you may need to replace your monitor. Contact your support representative.
- When repeating a failed calibration, make sure that the:
  - Room is dimly lit or a dark cloth is placed over the monitor
  - Sensor is securely attached to the monitor if the sensor has suction cups
  - Enable cable and sensor connections are properly made
  - Dark Gain Correction of the sensor is performed correctly
  - Monitor is warmed up properly
  - Monitor is a type that is supported for auto-calibration
  - Monitor is in Expert mode, if available
  - Super Bright mode is disabled, if available
  - Picture effect is set to **Dynamic**, if available
  - Timing for reading patches is set properly. We recommend that you use the default settings. If you have shortened the timing to increase calibration speed, the readings from the sensor may have some erroneous points. Go to **Options > Setup**. From the **Times** tab**,** set **Colors** to 4 and **Patches** to 1.
- Make sure to uninstall any other monitor calibration software that you might have on your system.

Characterization Failure

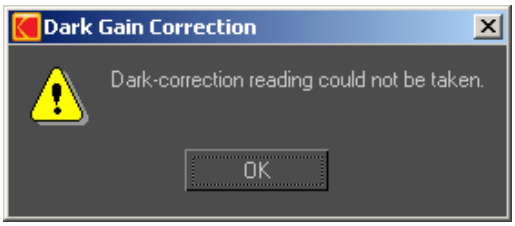
- Repeat the characterization making sure that the:
  - Room is dimly lit or a dark cloth is placed over the monitor
  - Sensor is securely attached to the monitor if the sensor has suction cups
  - Enable cable and the sensor connections are properly made
  - Dark Gain Correction of the sensor is performed correctly
  - Monitor is warmed up properly
- The monitor brightness may be set too low. Use the factory default setting. If that fails, increase the brightness.

Verification Failure

- Repeat the calibration and characterization making sure that the:
  - Room is dimly lit or a dark cloth is placed over the monitor
  - Sensor is attached to the monitor securely if the sensor has suction cups
  - Enable cable and sensor connections are properly made
  - Dark Gain Correction of the sensor is performed correctly
  - Monitor is warmed up properly
- Refer to the Verification logs. See “Verification Logs” on page 69.

Dark Gain Correction Failure

Dark Gain Correction may fail if light enters the sensor. The following message is displayed.



1. Click **OK** on this message and also on the initialization message that appears next.
2. Restart the process that you were running when you were prompted to perform the Dark Gain Correction - either Calibrate, Characterize or Verify.
3. When prompted for the Dark Gain Correction, place the sensor on a dark surface where light cannot reach it.

   Do not attach it to the monitor.

   Cover it with a dark cloth, if necessary.
4. Repeat the Dark Gain Correction.
5. If the previous steps failed to fix the problem, contact KODAK Service and Support (email address: tac@ei.kodak.com).

NOTE

Some hardware configurations may not be supported.

Sensor Does Not Adhere to Screen

X-RITE DTP92+EK

- Firmly push on the sides of the sensor so that the spring-loaded suction cup slides forward onto the screen. When the suction cup is firmly in place, release the sensor.
- You may need to moisten the suction cup by wiping it with a tissue lightly dampened with water. Or fog the suction cup by breathing on it.
- You may need to clean the monitor and suction cup, if the sensor does not firmly attach. Clean the suction cup with a clean dry cloth.

IMPORTANT

Do not apply a cleanser to the suction cup.

To clean the monitor, use a soft, lint-free paper or cloth lightly dampened with a mild glass cleaner.

SEQUEL sensor

- When attaching the sensor, press firmly but not too hard.
- Clean the sensor. Use alcohol and a lint-free cloth to clean the suction cups and sensor face.
- Clean the monitor. Use a monitor cleaning kit or a soft cloth with a solution designed to clean monitors.
- If the sensor continues to fall off, lightly wet the suction cups with alcohol before attaching to the monitor.

Sensor Needs to be Replaced

X-RITE Sensors

Contact X-Rite if your sensor fails. Call 1-800-248-9748.

SEQUEL Sensors

If you are prompted to replace the sensor, contact your service representative.

Sensor Fails to Initialize

If you get a message that the sensor failed to initialize:

- Go to **Options > Setup**. From the **Sensor** tab, make sure that you selected the appropriate sensor and connection type.
- Check the connection.
- Make sure that the USB or serial port is live and functional.
- It is possible that your USB hub is not compatible with the sensor. Connect the sensor directly to the computer to verify.
- If you are using WINDOWS 2000 and have unplugged the sensor, you must restart your computer.
- If you extended the length of the cable, make sure that you have used no more than five repeaters. Repeaters can be placed every 5 meters (16.4 feet) for a total length of 30 meters (98.4 feet). Instead of using repeaters, use a Port Authority Device and extension cable.
- (WINDOWS only) Check your hardware devices.
  From the WINDOWS Start button, click **Settings > Control Panel > System > General tab > Device Manager**. Make sure the sensor is installed and does not have an orange flag next to its name in the directory. If so, reinstall the software from the installation CD. Your license key will continue to work if you reinstall the software.
- If your WINDOWS system cannot locate the drivers, go to:

  C:\Program Files\Kodak\KODAK Display Manager System\ SequelDrivers

  OR

  C:\Program Files\Kodak\KODAK Display Manager System\ XRiteDrivers

USB Device Is Not Recognized

This can happen with a LINUX or WINDOWS system when you restart your computer and the device is connected.

With your computer running, unplug the device and plug it back in.

Enable Cable Does Not Recognize the Monitor

- Check the connection.
- Make sure that the USB port is live and functional.
- If you are using WINDOWS 2000 and have unplugged the enable cable, you must restart your computer.
- (WINDOWS only) Check your hardware devices.

  From the WINDOWS Start button, click **Settings > Control Panel > System > General tab > Device Manager**. Make sure the enable cable is installed and does not have an orange flag next to its name in the directory. If so, reinstall the software from the installation CD. Your license key will continue to work if you reinstall the software.
- Make sure that you are using a VGA monitor cable and that all the pins are in place.
- If your monitor still does not recognize the enable cable, you may have a monitor that is not supported by the Display Manager System. You must perform a manual calibration instead of an automatic calibration. See "Manual Calibration" on page 34.

License Has Expired

- If your license has expired, go to the website www.kodak.com/go/dm to locate the phone number for a support representative in your region.
- If you are prompted that your license has expired but the time period has not expired, send an email to **tac@ei.kodak.com**.
- Contact **tac@ei.kodak.com** if your license is invalidated after one of these events:
  - You changed your Ethernet controller.
  - You moved the application to a different machine. The Display Manager System only launches on the system for which the license was first generated.

License File Does Not Work

Make sure the **kdm.lic** file is in the correct location.

- (WINDOWS Operating Systems): **C:\Program Files\KODAK\KODAK Display Manager System\Licenses**
- (MACINTOSH Operating Systems): **Applications/KODAK Display Manager System/Licenses**
- (LINUX and IRIX Operating Systems) **/usr/local/KDM/Licenses**

Unable to Load an Image

- The Display Manager System only recognizes .dpx, .cin, and .tif (with video content) image files.
- Your image file may be corrupt or may not be a true .dpx, .cin, or .tif (with video content) file.

Unable to Load a Transform

- Make sure that the transform has the correct extension (.e3d, .3dl, or .chr).
- The 3D LUT may be corrupt. To regenerate and reload the LUT:
  1. From the Viewer toolbar, click **Load Transform** and select the appropriate .chr file needed to generate the 3D LUT.
  2. Adjust the settings as necessary.
  3. Click **Build Transform**.
  4. Click **Load Transform** and select the new LUT that you generated.
- The .chr file may be corrupt. Perform another characterization to create a new file.

Unable to Build or Export a Transform

If you receive an error message when you click **Export Transform** in the Viewer toolbar, you may not have permission to write to the LUT working directory.

1. Click **Options > Setup**. From the **Directories** tab, make sure you entered the correct path.
2. Change the path, if necessary.

Calibrate Icon Is Not Available

The Calibrate icon is only available if you have attached an enable cable.

Imaging Product Cannot Find 3D LUT

If your imaging product cannot find the 3D LUT that you created from the Viewer:

- Make sure you have the proper path set. Go to **Options > Setup** and from the **Directories** tab set the path.
- Make sure your imaging product is supported by the Display Manager System.
- Refer to your imaging product user guide for directions on 3D LUTs generated by the Display Manager System.

Problem with the .ini File

When opening the Display Manager System, you may see an error message for the .ini file if you have not yet saved any settings for the first time.

If you have saved your settings but you still get a message that there is a problem with the .ini file:

1. Click **OK**.

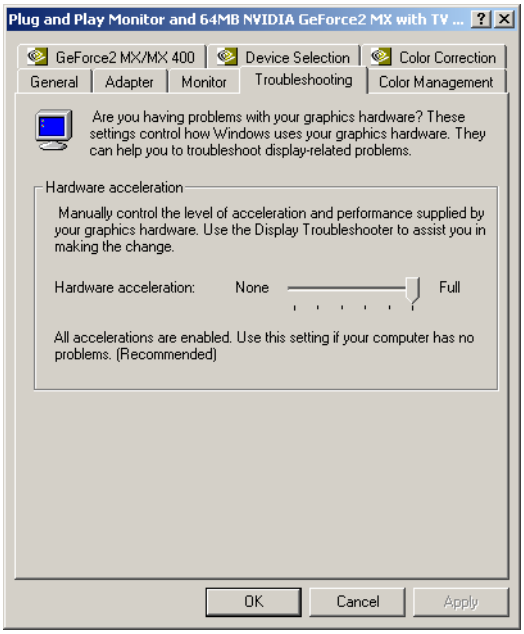
   The system opens using the factory defaults for any unknown values.

2. Reset and save your system options. See "Saving and Loading Settings" on page 28.
3. If necessary, reset and save your Viewer settings. See "Viewing and Customizing Looks" on page 47.

Image Does Not Appear in the Viewer

- Your graphics card may need to be upgraded.
- (WINDOWS only) Verify that you have the latest driver for your graphics card.
  1. Right-click the screen. From the pop-up menu click **Properties**.
  2. On the **Settings** tab, click **Advanced**.
  3. Click the **Adapter** tab to view information about your graphics card.
  4. Go to the manufacturer's Web site and make sure you have the latest driver.

- (WINDOWS only) You may need to adjust the acceleration of your graphics card.
  1) Close the Display Manager System.
  2) Right-click the screen. From the pop-up menu, click **Properties**.
  3) On the **Settings** tab, click **Advanced**.
  4) Click the **Troubleshooting** tab.



  5) Move the accelerator indicator back one stop to a slower setting. The default setting is **Full**.
  6) Click **OK**.
  7) Open the Display Manager System and load an image in the Viewer.
  8) If the problem was not corrected, close the Display Manager System and repeat steps 2-7 until the problem is corrected. The goal is to keep the acceleration indicator as far to the right as possible and still have the Viewer work.

IMPORTANT

Do not use the lowest setting. Your computer may become unusably slow. Purchase a new video card if the next to the slowest setting does not work.

NOTE

(WINDOWS XP only) If slowing the acceleration does not solve the problem, deselect **Enable write combining**.

Results Are Not as Expected

- To make use of all the Display Manager System features, make sure that you are using a VGA monitor cable with all the pins in position.
- The environment might not have been dark enough. Repeat the calibration and characterization with a dark cloth covering the monitor.
- The sensor, if it has suction cups, might have fallen off during the process. Repeat the process making sure that the sensor is firmly attached.
- Make sure that the Dark Gain Correction of the sensor is performed correctly.
- Make sure that your monitor color quality is set to the highest possible value (at least 16 bits).
- Make sure to warm up the monitor for a least one hour before using the Display Manager System.
- Make sure that the screen saver and power save mode do not come on during the process.
- Set your screen resolution to at least 1280 x 1024.
- If using an HD/SD display or digital projector, use the Manual Characterization Assistant to accurately profile the display. See "Manual Characterization" on page 42.
- Input all data available for your specific process. See "Setting the Options" on page 22.
- Your scanner or recorder might be out of calibration.

Characterize and Verify Controls Are Not Visible on LINUX System

Configure your panel (taskbar) to allow other windows to appear above. Or set your panel to autohide.

Super Bright Capable Display will not Calibrate

You must turn off the Super Bright mode by pressing the SB button on the front of the monitor until the screen reads “Super Bright Mode Off”.

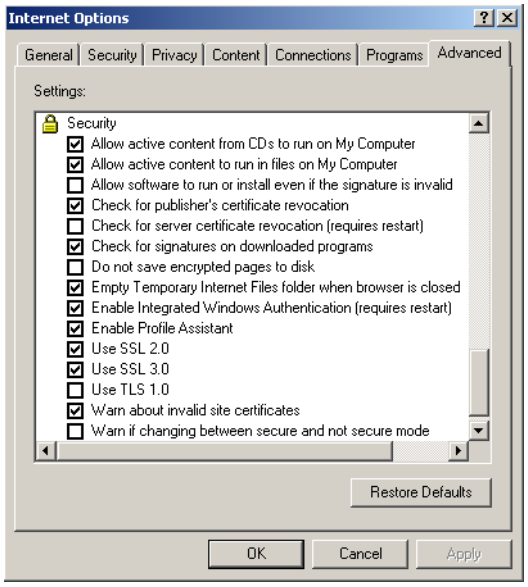
Help System Does Not Work Properly

If the contents pane does not appear, click your browser refresh button.

Internet Explorer

If you get a message that pop-ups are being blocked in Internet Explorer and you are running WINDOWS XP with SP2:

1. Open Internet Explorer.
2. Go to **Tools > Internet Options**.
3. Click the **Advanced** tab.
4. Select **Allow active content from CD to run on My Computer**.
5. Select **Allow active content to run in files on My Computer**.



Netscape

If you are using Netscape 4 and the Index, Glossary, Search, Print, and Support buttons do not work:

1. Open Netscape.
2. Go to **Edit > Preferences**.
3. Click the **Advanced** tab.
4. Check the following boxes:

   Enable Java

   Enable Java Plugin

   Enable JavaScript

   Enable JavaScript for Mail and News

   Enable Style Sheets

APPENDIX A
SYSTEM REQUIREMENTS

WINDOWS Operating System Minimum Requirements

Operating System: WINDOWS 2000 or XP

Processor: Minimum Pentium 3; Pentium 4 or equivalent is recommended

RAM: Minimum 256 MB RAM; 512 MB of RAM is recommended

Hard Drive Space: 100 MB of available space on hard drive for the application; additional space as needed for storing images

Video Card: 24-bit video/graphic card, 3D acceleration capability with at least 32 MB of RAM; OpenGL compliant

Monitor Resolution: 1280 x 1024 is recommended

Drives: CD-ROM drive

I/O: 2 available USB ports

NIC Card: (Network Interface Card)

MAC OS Minimum Requirements

Operating System: OS 10.2 or higher

Processor: G4 or higher is recommended

RAM: Minimum 256 MB RAM; 512 MB of RAM is recommended

Hard Drive Space: 100 MB of available space on hard drive for the application; additional space as needed for storing images

Video Card: 24-bit video/graphic card, 3D acceleration capability with at least 32 MB of RAM; OpenGL compliant

Monitor Resolution: 1280 x 1024 is recommended

Drives: CD-ROM drive

I/O: 2 available USB ports

NIC Card: (Network Interface Card)

IRIX Operating System Minimum Requirements

Operating System: IRIX 6.5 or higher

Processor: N 32 compliant

RAM: Minimum 256 MB RAM; 512 MB of RAM is recommended

Hard Drive Space: 100 MB of available space on hard drive for the application; additional space as needed for storing images

Video Card: 24-bit video/graphic card, 3D acceleration capability with at least 32 MB of RAM; OpenGL compliant

Monitor Resolution: 1280 x 1024 is recommended

Drives: CD-ROM drive

I/O: Serial port

LINUX Operating System Minimum Requirements

Operating System: Red Hat 9 or higher

Processor: Minimum Pentium 3; Pentium 4 or equivalent is recommended

RAM: Minimum 256 MB RAM; 512 MB of RAM is recommended

Hard Drive Space: 100 MB of available space on hard drive for the application; additional space as needed for storing images

Video Card: 24-bit video/graphic card, 3D acceleration capability with at least 32 MB of RAM; OpenGL compliant

Monitor Resolution: 1280 x 1024 is recommended

Drives: CD-ROM drive

I/O: 2 available USB ports

NIC Card: (Network Interface Card)

Additional Software and Hardware

Web Browser: For viewing the online help system

WINDOWS OS: INTERNET EXPLORER Version 6.x or higher

MAC OS: NETSCAPE 7.0 or higher

IRIX OS or LINUX OS: Mozilla Version 1.7 or higher

ADOBE ACROBAT Reader: To view and print the *User Guide* and *Quick Start Guide* on WINDOWS, MACINTOSH or LINUX systems. IRIX systems require Acrobat Reader 3.0.

USB Hub: If you do not have enough available USB ports

Port Authority Device: To extend the length of USB cables

Colorimeter or Spectrophotometer: For measuring patches as displayed from a digital projector. The MINOLTA CS-100A or the PHOTO RESEARCH PR-650 are recommended.

VGA cable: (from the display to the enable cable) To enable you to take advantage of all the Display Manager System features

Video Tapes: Video tapes with color patches, available from Kodak, can be used to assist in manual characterization.

APPENDIX B
SHORTCUT KEYS

Display Manager System Shortcut Keys

Task	WINDOWS/IRIX/ LINUX	MACINTOSH
Save As	Ctrl + Shift + s	Command + Shift + s
Copy	Ctrl + c	Command + c
Paste	Ctrl + v	Command + v
Cut	Ctrl + x	Command + x
Select All	Ctrl + a	Command + a
Quit	Ctrl + q	Command + q
Delete	Del	Delete
Open Help	F1	F1
Enable What's This	Shift + F1 (WINDOWS OS only)	Not available

NOTE

The MACINTOSH Command key looks like this: ⌘

Manual Characterization Assistant Shortcut Keys

Task	WINDOWS/IRIX/ LINUX	MACINTOSH
Load Default	Ctrl + d	Command + d
Load Template	Ctrl + l	Command + l
Save Characterization File	Ctrl + s	Command + s
Save Template	Ctrl + t	Command + t
Close	Ctrl + q	Command + q
Insert Row after Selected	Ctrl + i	Command + i
Remove Selected Row	Ctrl + r	Command + r

NOTE

The MACINTOSH Command key looks like this: ⌘

Viewer Shortcut Keys

Task	Key
Keep aspect ratio	k
Quit	q
Scale to fit	s
Toggle **Center** on and off	c
Toggle the display of out-of-gamut colors on and off	g

APPENDIX C
REGULATORY INFORMATION

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

This class A digital apparatus complies with Canadian ICES-003.
Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.

この装置は、情報処理装置等電波障害自主規制協議会（ＶＣＣＩ）の基準に基づくクラスＡ情報技術装置です。この装置を家庭環境で使用すると電波障害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

This is a Class A product based on the standard of the Voluntary Control Council for Interference by Information Technology Equipment (VCCI). If this equipment is used in a domestic environment, radio disturbance may arise. When such trouble occurs, the user may be required to take corrective actions.

CE

EU WEEE

In the European Union, this symbol indicates that when the last user wishes to discard this product, it must be sent to appropriate facilities for recovery and recycling. Contact your local Kodak representative or go to the website www.kodak.com/go/recycle for additional information on the collection and recovery programs available for this product.

GLOSSARY

3D LUT (3 dimensional look up table) A mathematical description of colors with red, green, and blue on the x, y, and z axis, respectively, forming a cube. The Display Manager System creates 3D LUTS based on the characterization of your display. You can export 3D LUTs for use by supported imaging products.

bias A monitor setting that determines the electrical current to the monitor.

black point The darkest color that a display device can display. Not necessarily true black.

brightness The measurement of both the saturation and luminance of a color.

calibration The process of adjusting the monitor's white and black points as close as possible to aim points. During automatic calibration in the Display Manager System, these adjustments are done via the enable cable. During manual calibration, the user makes the adjustments from the monitor controls. Calibration is a foundation for creating a profile of the display.

characterization The measurement of the color characteristics of a display. This results in the creation of a .chr file that describes how the device displays colors. The Display Manager System Viewer uses this file to create a 3D LUT. Also referred to as profiling.

chromaticity coordinates Coordinates that specify position in a chromaticity diagram. The chromaticity coordinates of a stimulus are derived from its tristimulus values by taking the ratio of each of the tristimulus values to their sum; i.e. x=X/X+Y+Z, y=Y/X+Y+Z, where x and y are the chromaticity coordinates and X,Y, and Z the tristimulus values.

chromaticity diagram A two dimensional plot of (three dimensional) color space depicting the (three dimensional) relationship among colors perceived by the normal human visual system. This plot most commonly includes a "horseshoe" which defines the spectral locus (the range of colors visible to the human observer). Colors are indicated on the plot by x, y chromaticity coordinates which correlate to color attributes.

CIELab A device independent color space that defines colors according to lightness (L), redness/greenness (a), and yellowness/blueness (b).

color gamut See *gamut*.

colorbars target A .dpx file provided with the Display Manager System that can be used to manually calibrate an HD/SD display. Project this file through your imaging software to adjust the brightness and pluge of your monitor. This file is located on the installation CD in the **Images/patches** folder.

colorimeter A measurement device that measures luminance, Y and chromaticity, x, y.

correlated color temperature (CCT) A measurement in Kelvins of the color appearance of a light source.

dark gain correction An adjustment to the sensor that eliminates inherent noise.

display aim The desired brightness or luminance values that you want calibration to match for your display. Set these values from the **Options > Setup** window.

display mode The type of calibration you perform in the Display Manager System, Auto or Manual. During automatic calibration adjustments are done via the enable cable. During manual calibration, the user makes the adjustments from the monitor controls.

enable cable A cable used to interface between a CRT monitor and a computer during automatic calibration.

framing The process of cropping an image to fit into the specified aspect ratio.

gamma A measurement of the relationship between the voltage input and the brightness of your monitor.

gain The percent of increase between the input signal and the output signal.

gamut The range of colors that a device can produce. Also called color gamut.

HD High definition displays that can display 1080 and 1035 interlaced lines of resolution along with 720 and 1080 progressive lines of resolution in a 16:9 aspect ratio.

illuminant A physical or emulated light that is defined by its spectral power distribution.

kdm.ini file The default data file containing the system settings information. This file is used by the system each time it opens. After the Display Manager System opens, you can load customized .ini files if you do not want to use the settings in the kdm.ini file.

KODAK VISION2 HD System — A KODAK Imaging System for television that combines a scan-optimized color negative film and image processing implemented through new hardware to enable the creation of multiple starting looks for post production work.

LAD — Laboratory Aim Density

luminance — A measurement of a luminant surface that approximates the perception of brightness.

manual characterization assistant — A Display Manager System utility that can be used to create a characterization file for an HD/SD display or digital projector.

patches — Individual color squares that the sensor reads during calibration, characterization, and verification.

pluge chart — (Picture Line-up Generation Equipment) A test pattern used to adjust the black level of a display. Adjust the brightness of your monitor until the pattern blends into the black background.

profile — A data file that describes how a display reproduces color. In the Display Manager System this is a .chr file that is created during the characterization process.

projector aim — Description of the film projector you are emulating. Specified by the film projector open gate luminance and chromaticity or a spectral power distribution curve.

projector SPD — (spectral power distribution) A description of a source's characteristics, which indicates the amount of power of the source at each wavelength in the spectrum.

Quick Verify — A Display Manager utility that lets you quickly check 3 color patches to determine if your display has started to drift out of tolerance.

SD — Standard definition display capable of displaying NTSC and PAL video. NTSC broadcasting uses 525 lines of resolution while PAL broadcasts at 625 lines of resolution.

sensor — A colorimeter used to measure color values of patches during calibration, characterization, and verification.

SMPTE — Society of Motion Picture and Television Engineers

SPD — See *projector SPD.*

spectrophotometer — A device used to measure spectral distribution as a function of wavelength. Use to measure the White Luminance and White Chromaticity of your digital projector. Enter these values on the Set

Up window. A colorimeter can also be used to take this measurement.

spectroradiometer A device used to measure light as a function of wavelength. Use to measure the SPD of your projector. On the Set Up window, you can import the resulting file.

Status A Photographic densities. The Display Manager System allows you to enter these values from a measured LAD patch when creating a transform. This allows you to specify the printout process.

Status M Photographic densities. The Display Manager System allows you to enter negative density values to track film recorder response. This information is included in the print emulation model to compensate for recorder and process variations.

surround compensation A Display Manager System option that corrects for the effect of viewing images in an environment that is not dimmed.

target A data file that contains preset calibration values. Three default targets are provided with the Display Manager System and can be used as a starting point for setting the calibration values.

tolerances The acceptable values above and below aim values when calibrating your monitor.

transform A data file that contains the color information to be applied to an image. This can be a .chr, .3dl, or .e3d file.

verification The process of checking the system to determine the quality of the monitor setup and print film match.

VISION2 HD System See *KODAK VISION2 HD System*.

white point The lightest color that a display can display. Not necessarily pure white. The white point may be expressed in terms of correlated color temperature or chromaticity coordinates.

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